

RF TEST REPORT

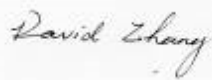


Report No.: FCC_RF_SL14091001-RUC-017A1_UNII Rev 1.1

Supersede Report No.: FCC_RF_SL14091001-RUC-017A1_UNII Rev 1.0

Applicant	:	Ruckus Wireless, Inc.
Product Name	:	Wireless Bridge
Model No.	:	P300
Test Standard	:	47 CFR 15.407
Test Method	:	ANSI C63.10: 2013 789033 D02 General UNII Test Procedures New Rules v01
FCC ID	:	S9GP300
IC ID	:	5912A-P300
Dates of test	:	04/06/2015 to 04/20/2015
Issue Date	:	08/03/2015
Test Result	:	☒ Pass ☐ Fail
Equipment complied with the specification ☒		
Equipment did not comply with the specification ☐		

This Test Report is Issued Under the Authority of:

	
Ricky Wang	David Zhang
Test Engineer	Engineer Reviewer
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Issued By:
SIEMIC Laboratories
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Laboratory Introduction

SIEMIC, headquartered in the heart of Silicon Valley, with superior facilities in US and Asia, is one of the leading independent testing and certification facilities providing customers with one-stop shop services for Compliance Testing and Global Certifications.



In addition to testing and certification, SIEMIC provides initial design reviews and compliance management throughout a project. Our extensive experience with China, Asia Pacific, North America, European, and International compliance requirements, assures the fastest, most cost effective way to attain regulatory compliance for the global markets.

Accreditations for Conformity Assessment

Country/Region	Accreditation Body	Scope
USA	FCC, A2LA	EMC, RF/Wireless, Telecom
Canada	IC, A2LA, NIST	EMC, RF/Wireless, Telecom
Taiwan	BSMI, NCC, NIST	EMC, RF, Telecom, Safety
Hong Kong	OFTA, NIST	RF/Wireless, Telecom
Australia	NATA, NIST	EMC, RF, Telecom, Safety
Korea	KCC/RRR, NIST	EMI, EMS, RF, Telecom, Safety
Japan	VCCI, JATE, TELEC, RFT	EMI, RF/Wireless, Telecom
Mexico	NOM, COFETEL, Caniety	Safety, EMC, RF/Wireless, Telecom
Europe	A2LA, NIST	EMC, RF, Telecom, Safety
Israel	MOC, NIST	EMC, RF, Telecom, Safety

Accreditations for Product Certifications

Country	Accreditation Body	Scope
USA	FCC TCB, NIST	EMC, RF, Telecom
Canada	IC FCB, NIST	EMC, RF, Telecom
Singapore	iDA, NIST	EMC, RF, Telecom
EU	NB	EMC & R&TTE Directive
Japan	MIC (RCB 208)	RF, Telecom
Hong Kong	OFTA (US002)	RF, Telecom

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1 Report Revision History

Report No.	Report Version	Description	Issue Date
FCC_RF_SL14091001-RUC-017A1_UNII	None	Original	04/20/2015
FCC_RF_SL14091001-RUC-017A1_UNII Rev 1.0	Rev 1.0	Updated antenna information and plots	07/06/2015
FCC_RF_SL14091001-RUC-017A1_UNII Rev 1.1	Rev 1.1	Updated EUT information	08/03/2015

2 Executive Summary

The purpose of this test program was to demonstrate compliance of following product

Company: Ruckus Wireless, Inc.
Product: Wireless Bridge
Model: P300

against the current Stipulated Standards. The specified model product stated above has demonstrated compliance with the Stipulated Standard listed on 1st page.

3 Customer information

Applicant Name	:	Ruckus Wireless, Inc.
Applicant Address	:	350 West Java Drive, Sunnyvale, California 94089 U.S.A
Manufacturer Name	:	Ruckus Wireless, Inc.
Manufacturer Address	:	350 West Java Drive, Sunnyvale, California 94089 U.S.A

4 Test site information

Lab performing tests	SIEMIC Laboratories
Lab Address	775 Montague Expressway, Milpitas, CA 95035
FCC Test Site No.	881796
IC Test Site No.	4842D-2
VCCI Test Site No.	A0133

5 Modification

Index	Item	Description	Note
-	-	-	-

6 EUT Information

6.1 EUT Description

Product Name	: Wireless Bridge
Model No.	: P300
Trade Name	: Ruckus
Serial No.	: 111573903705
Host Model No.	: N/A
Input Power	: 48VDC (PoE)
Power Adapter Manu/Model	: N/A
Power Adapter SN	: N/A
Product Hardware version	: 705-60376-001
Product Software version	: 812-72405-001
Radio Hardware version	: 705-60376-001
Radio Software version	: 812-72405-001
Test Software version	: 4_9_575_5_CS_3
Date of EUT received	: 03/25/2015
Equipment Class/ Category	: DTS, UNII
Clock Frequencies	: N/A
Port/Connectors	: PoE, Ethernet

6.2 Radio Description

Radio Type	802.11a	802.11n-HT20	802.11n-HT40	802.11ac
Operating Frequency	5260-5320MHz 5500-5700MHz	5260-5320MHz 5500-5700MHz	5270-5310MHz 5510-5670MHz	5290MHz 5530-5610MHz
Modulation	OFDM (BPSK, QPSK, 16QAM, 64QAM)	OFDM (BPSK, QPSK, 16QAM, 64QAM)	OFDM (BPSK, QPSK, 16QAM, 64QAM)	OFDM (BPSK, QPSK, 16QAM, 64QAM)
Channel Spacing	20MHz	20MHz	40MHz	80MHz
Number of Channels	15	15	7	3
Antenna Type	Internal Antenna/External Antenna			
Antenna Gain (Peak)	Internal:14dBi External1:21dBi External2:24dBi			
Antenna Connector Type	Internal_14dBi: U.FL External1_21dBi: N-Type External2_24dBi: N-Type			
Note	EUT has 3 antennaset, 1 internal antenna with 14dBi gain, 1 external antenna with 21dBi gain and 1 external antenna with 24dBi gain. 3 antennaset shall be used separately.			

EUT Configurations:

Product Hardware version	705-60376-001
Product Software version	812-72405-001
Radio Hardware version	705-60376-001
Radio Software version	812-72405-001
Test Software version	4_9_575_5_CS_3
DFS version	100.1.0.9

EUT Power level setting

Band	Mode	Frequency	14dBi antenna	21dBi antenna	24dBi antenna
5.3GHz	802.11a	5260	17	9	6
		5280	17	9	6
		5320	17	9	6
	802.11n-HT20	5260	17	9	6
		5280	17	9	6
		5320	17	9	6
	802.11n-HT40	5270	20	12	9
		5310	18	12	9
	802.11ac	5290	18	9	8
5.5GHz	802.11-a	5500	17	9	6
		5580	18	9	6
		5700	18	10	7
	802.11n-HT20	5500	17	10	7
		5580	18	10	7
		5700	18	10	7
	802.11n-HT40	5510	20	12	9
		5590	20	12	9
		5670	20	12	9
	802.11ac	5530	18	10	8
Cross Band Band channels	802.11a	5720	18	10	7
	802.11n-HT20	5720	18	10	7
	802.11n-HT40	5710	20	12	9
	802.11ac	5690	20	12	9

7 Supporting Equipment/Software and cabling Description

7.1 Supporting Equipment

Item	Supporting Equipment Description	Model	Serial Number	Manufacturer	Note
1	Laptop	PP01L Latitude E5440	F1WPF12	Dell	-
2	POE Adapter	740-64157-001	133279963	Ruckus	-

7.2 Cabling Description

Name	Connection Start		Connection Stop		Length / shielding Info		Note
	From	I/O Port	To	I/O Port	Length (m)	Shielding	
RJ45	EUT	RJ45	POE	RJ45	2	Unshielded	-
RJ45	POE	RJ45	Laptop	RJ45	3	Unshielded	-

7.3 Test Software Description

Test Item	Software	Description
RF Testing	Command Line in windows	Set the EUT to transmit continuously in diferent test modes and channels

8 Test Summary

Test Item	Test standard		Test Method/Procedure	Pass / Fail
Restricted Band of Operation	FCC	15.205	ANSI C63.4 – 2014 789033 D02 General UNII Test Procedures New Rules v01	☒ Pass ☐ N/A
AC Conducted Emissions Voltage	FCC	15.207(a)	ANSI C63.4 – 2014	☒ Pass ☐ N/A

Test Item	Test standard		Test Method/Procedure	Pass / Fail
26 & 6 dB Emission Bandwidth	FCC	15.407 (a) (2)	789033 D02 General UNII Test Procedures New Rules v01	☒ Pass ☐ N/A
Maximum conducted Output Power	FCC	15.407 (a) (2)	789033 D02 General UNII Test Procedures New Rules v01	☒ Pass ☐ N/A
Power reduction (Antenna Gain > 6 dBi)	FCC	15.407 (a) (2)	-	☐ Pass ☒ N/A
Band Edge and Radiated Spurious Emissions	FCC	15.407(b)(2), 15.407(b)(6)	ANSI C63.4 – 2014 789033 D02 General UNII Test Procedures New Rules v01	☒ Pass ☐ N/A
Power Spectral Density	FCC	15.407 (a) (2)	789033 D02 General UNII Test Procedures New Rules v01	☒ Pass ☐ N/A
Frequency Stability	FCC	15.407 (g)	-	☐ Pass ☒ N/A
Transmit Power Control (TPC)	FCC	15.407 (h)(1)	-	☐ Pass ☒ N/A
User Manual	FCC	-	-	☒ Pass ☐ N/A
Remark	- All measurement uncertainties are not taken into consideration for all presented test result. - The applicant shall ensure frequency stability by showing that an emission is maintained within the band of operation under all normal operating conditions as specified in the user's manual.			

9 Measurement Uncertainty

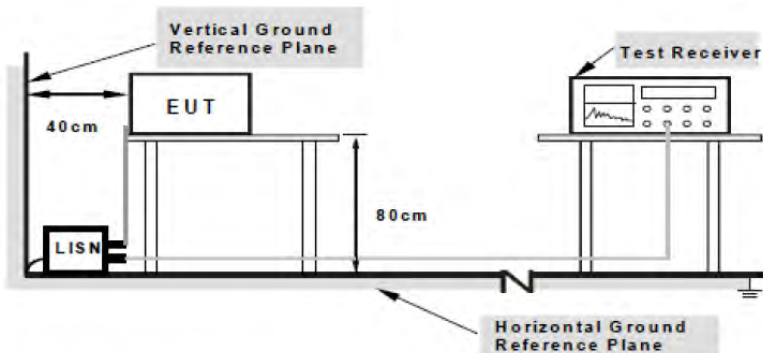
Emissions			
Test Item	Frequency Range	Description	Uncertainty
Band Edge and Radiated Spurious Emissions	30MHz – 1GHz	Confidence level of approximately 95% (in the case where distributions are normal), with a coverage factor of 2 (for EUTs < 0.5m X 0.5m X 0.5m)	+5.6dB/-4.5dB
Band Edge and Radiated Spurious Emissions	1GHz – 40GHz	Confidence level of approximately 95% (in the case where distributions are normal), with a coverage factor of 2 (for EUTs < 0.5m X 0.5m X 0.5m)	+4.3dB/-4.1dB

10 Measurements, Examination and Derived Results

10.1 Conducted Emissions

Conducted Emission Limit

Frequency ranges (MHz)	Limit (dBuV)	
	QP	Average
0.15 ~ 0.5	66 – 56	56 – 46
0.5 ~ 5	56	46
5 ~ 30	60	50

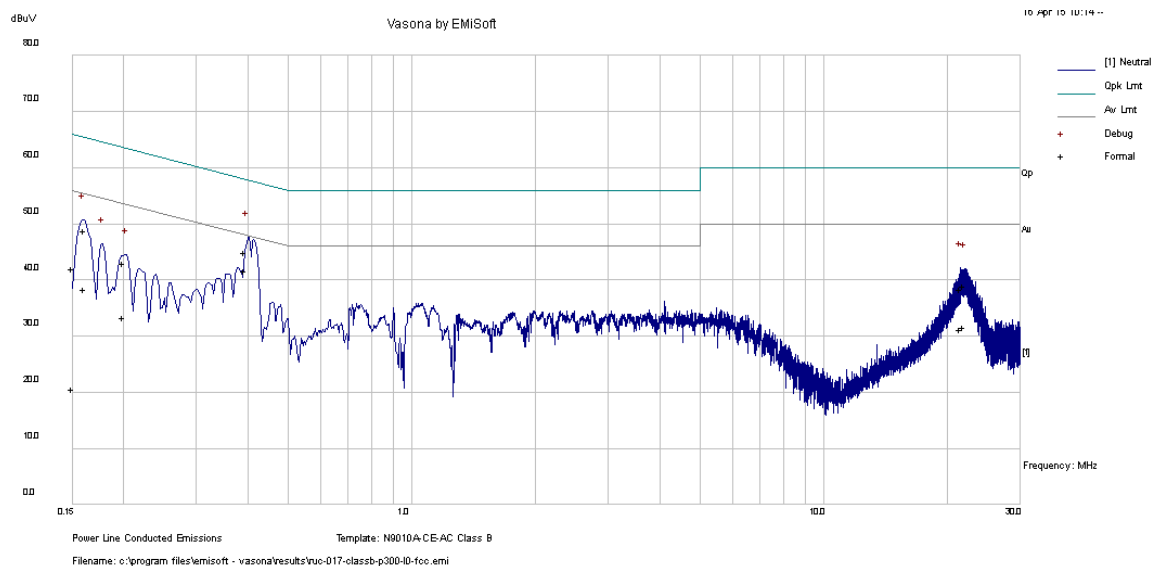
Spec	Item	Requirement	Applicable
47CFR§15.207	a)	For Low-power radio-frequency devices that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 μ H/50 ohms line impedance stabilization network (LISN). The lower limit applies at the boundary between the frequency ranges.	☒
Test Setup	 Note: 1. Support units were connected to second LISN. 2. Both of LISNs (AMN) are 80cm from EUT and at least 80cm from other units and other metal planes support units.		
Procedure	- The EUT and supporting equipment were set up in accordance with the requirements of the standard on top of a 1.5m x 1m x 0.8m high, non-metallic table, as shown in Annex B. - The power supply for the EUT was fed through a 50Ω/50μH EUT LISN, connected to filtered mains. - The RF OUT of the EUT LISN was connected to the EMI test receiver via a low-loss coaxial cable. - All other supporting equipment was powered separately from another main supply.		
Remark	EUT tested with AC 120V 60Hz		
Result	☒ Pass ☐ Fail		

Test Data ☒ Yes ☐ N/A

Test Plot ☒ Yes (See below) ☐ N/A

Conducted Emission Test Results

Test specification:	Conducted Emissions			
Environmental Conditions:	Temp(°C):	21	Result:	☒ Pass ☐ Fail
	Humidity (%):	42		
	Atmospheric(mbar):	1021		
Mains Power:	120Vac, 60Hz			
Tested by:	Osvaldo Casorla			
Test Date:	04/08/2015			
Remarks	Neutral			

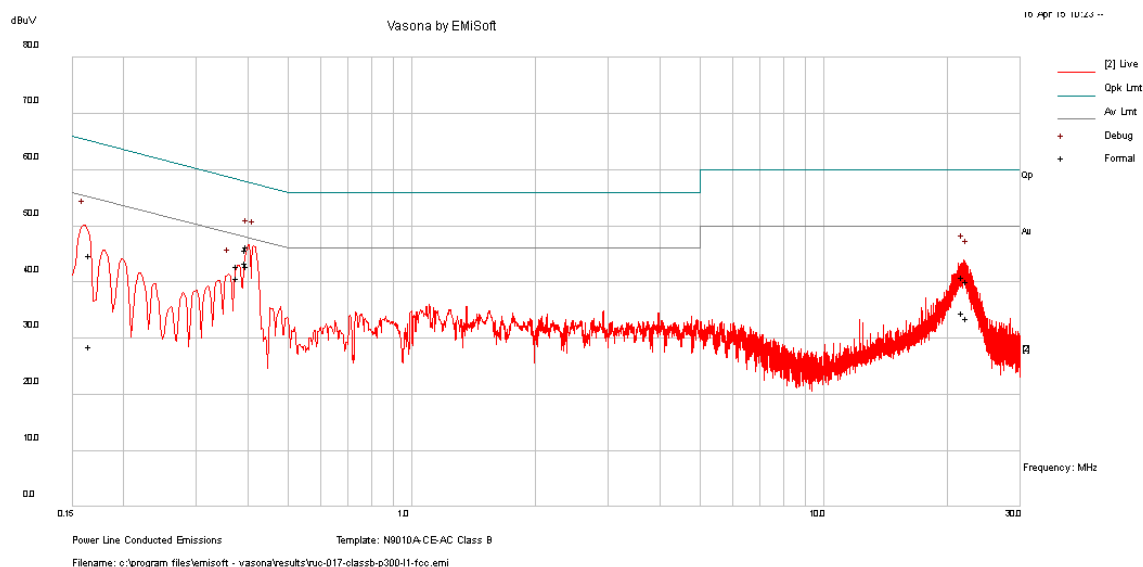


Line Plot at 120Vac, 60Hz

Frequency (MHz)	Raw (dBuV)	Cable Loss (dB)	Factors (dB)	Level (dBuV)	Measurement Type	Line	Limit (dBuV)	Margin (dB)	Pass /Fail
0.39	34.24	10.01	0.73	44.97	Quasi Peak	Neutral	57.96	-12.99	Pass
0.15	31.30	10.00	0.76	42.06	Quasi Peak	Neutral	66.00	-23.94	Pass
21.48	26.03	10.07	2.27	38.37	Quasi Peak	Neutral	60.00	-21.63	Pass
21.95	26.56	10.07	2.27	38.90	Quasi Peak	Neutral	60.00	-21.10	Pass
0.16	38.00	10.00	0.75	48.76	Quasi Peak	Neutral	65.42	-16.66	Pass
0.20	32.34	10.00	0.74	43.09	Quasi Peak	Neutral	63.62	-20.54	Pass
0.39	30.89	10.01	0.73	41.63	Average	Neutral	47.96	-6.34	Pass
0.15	9.82	10.00	0.76	20.58	Average	Neutral	56.00	-35.42	Pass
21.48	18.89	10.07	2.27	31.24	Average	Neutral	50.00	-18.76	Pass
21.95	19.39	10.07	2.27	31.73	Average	Neutral	50.00	-18.27	Pass
0.16	27.66	10.00	0.75	38.42	Average	Neutral	55.42	-17.00	Pass
0.20	22.72	10.00	0.74	33.47	Average	Neutral	53.62	-20.15	Pass

Conducted Emission Test Results

Test specification:	Conducted Emissions			
Environmental Conditions:	Temp(°C):	21	Result:	☒ Pass ☐ Fail
	Humidity (%):	42		
	Atmospheric(mbar):	1021		
Mains Power:	120Vac, 60Hz			
Tested by:	Osvaldo Casoria			
Test Date:	04/08/2015			
Remarks	Line			



Neutral Plot at 120Vac, 60Hz

Frequency (MHz)	Raw (dBuV)	Cable Loss (dB)	Factors (dB)	Level (dBuV)	Measurement Type	Line	Limit (dBuV)	Margin (dB)	Pass /Fail
0.40	35.51	10.01	0.73	46.25	Quasi Peak	Live	57.86	-11.61	Pass
0.40	35.05	10.01	0.73	45.79	Quasi Peak	Live	57.91	-12.12	Pass
0.17	33.96	10.00	0.75	44.71	Quasi Peak	Live	65.19	-20.48	Pass
21.78	28.57	10.07	2.27	40.91	Quasi Peak	Live	60.00	-19.09	Pass
22.30	27.75	10.07	2.27	40.10	Quasi Peak	Live	60.00	-19.90	Pass
0.38	32.17	10.01	0.72	42.90	Quasi Peak	Live	58.33	-15.43	Pass
0.40	32.11	10.01	0.73	42.85	Average	Live	47.86	-5.01	Pass
0.40	32.77	10.01	0.73	43.50	Average	Live	47.91	-4.41	Pass
0.17	17.88	10.00	0.75	28.63	Average	Live	55.19	-26.56	Pass
21.78	22.28	10.07	2.27	34.62	Average	Live	50.00	-15.38	Pass
22.30	21.29	10.07	2.27	33.64	Average	Live	50.00	-16.37	Pass
0.38	29.99	10.01	0.72	40.72	Average	Live	48.33	-7.61	Pass

Note: The results above show only the worst case.

10.2 26 dB Bandwidth

Requirement(s):

Spec	Item	Requirement	Applicable
§ 15.407	-	26 dB Emission BW: Report only for reference.	☒
	a) (2)	26 dB Emission BW: Report only for power limit calculation.	☐
Test Setup			
Test Procedure	789033 D02 General UNII Test Procedures New Rules v01 <u>26dB Emission bandwidth measurement procedure (Other than 5.725-5.85 GHz)</u> - Allow the trace to stabilize. - Use the spectrum analyzer built-in measurement function to determine the 26dB BW. - o Set RBW = around 1% of emission bandwidth - o Set VBW > RBW - o Detector = Peak - o Trace mode = max hold - Capture the plot. - Repeat above steps for different test channel and other modulation type.		
Test Date	04/08/2015	Environmental condition	Temperature 23°C Relative Humidity 42% Atmospheric Pressure 1021mbar
Remark	N/A		
Result	☒ Pass ☐ Fail		

Equipment Setting

TEST	RBW	VBW	SPAN	Detector	SWEEP	Trace	NOTES
26 dB Emission Bandwidth	1% of 26 dB EBW	>RBW	>EBW	PK	Auto	Maxhold	-

Test Data ☒ Yes ☐ N/A
Test Plot ☒ Yes ☐ N/A

26dB Bandwidth measurement result for 5.3GHz

Type	Test mode	Freq (MHz)	CH	Result (MHz)	Power calculation (dBm) 11 dBm+10 log B
26dB BW	802.11a	5260	Low	21.39	24.30
		5280	Mid	21.30	24.28
		5320	High	21.33	24.29
	802.11n-HT20	5260	Low	22.25	24.47
		5280	Mid	22.28	24.48
		5320	High	23.39	24.69
	802.11n-HT40	5270	Low	43.07	27.34
		5310	High	43.77	27.41
	802.11ac	5290	Mid	85.69	30.33

26dB Bandwidth measurement result for 5.5GHz

Type	Test mode	Freq (MHz)	CH	Result (MHz)	Power calculation (dBm) 11 dBm+10 log B
26dB BW	802.11a	5500	Low	22.16	24.46
		5580	Mid	21.09	24.24
		5700	High	21.40	24.30
	802.11n-HT20	5500	Low	22.32	24.49
		5580	Mid	22.30	24.48
		5700	High	22.28	24.48
	802.11n-HT40	5510	Low	42.22	27.26
		5590	Mid	42.66	27.30
		5670	High	43.83	27.42
	802.11ac	5530	Low	86.59	30.37

26dB Bandwidth measurement result for Cross Band Band channels

Type	Test mode	Freq (MHz)	CH	Result (MHz)	Power calculation (dBm) 11 dBm+10 log B
26dB BW	802.11a	5720	Cross Band	21.47	24.32
	802.11n-HT20	5720	Cross Band	22.35	24.49
	802.11n-HT40	5710	Cross Band	46.07	27.63
	802.11ac	5690	Cross Band	85.86	30.34

26dB Bandwidth Test Plots



26dB BW -802.11a-5260MHz



26dB BW -802.11a-5280MHz



26dB BW -802.11a-5320MHz



26dB BW -802.11n-HT20-5260MHz



26dB BW -802.11n-HT20-5280MHz



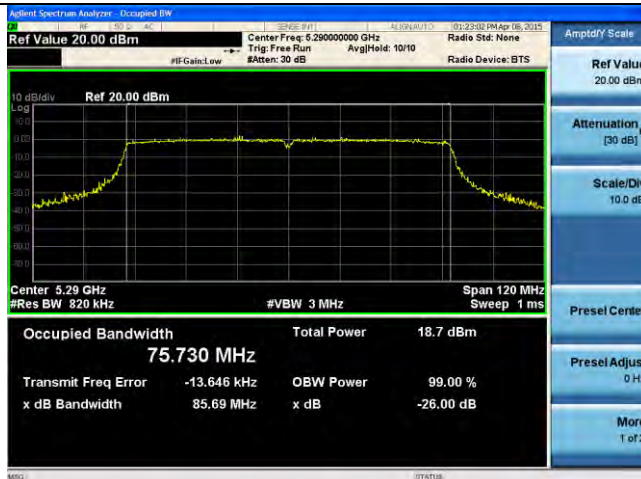
26dB BW -802.11n-HT20-5320MHz



26dB BW -802.11n-HT40-5270MHz



26dB BW -802.11n-HT40-5310MHz



26dB BW -802.11ac-5290MHz



26dB BW -802.11a-5500MHz



26dB BW -802.11a-5580MHz



26dB BW-802.11a-5700MHz



26dB BW -802.11n-HT20-5500MHz



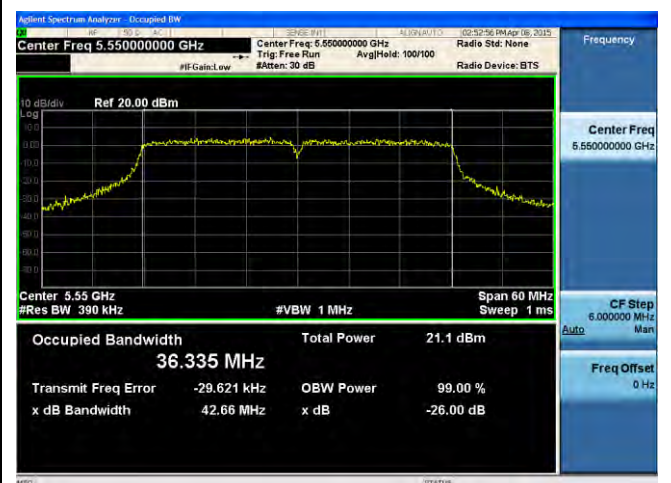
26dB BW -802.11n-HT20-5580MHz



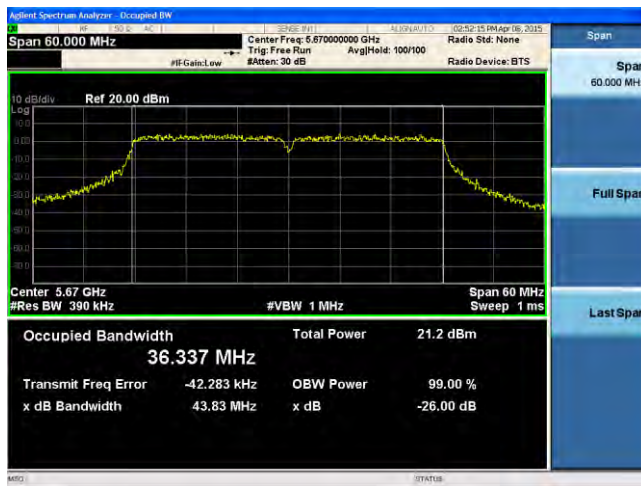
26dB BW -802.11n-HT20-5700MHz



26dB BW -802.11n-HT40-5510MHz



26dB BW -802.11n-HT40-5550MHz



26dB BW -802.11n-HT40-5670MHz



26dB BW -802.11ac-5530MHz



26dB BW -802.11a CROSS BAND-5720MHz



26dB BW -802.11n-HT20-5720MHz



26dB BW -802.11n-HT40-CROSS BAND-5710MHz



26dB BW -802.11ac-CROSS BAND-5690MHz

10.3 Peak Output Power

Requirement(s):

Spec	Item	Requirement	Applicable
§ 15.407	a)(1)(i)	For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).	☐
	a)(1)(ii)	For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi.	☐
	a)(1)(iii)	For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi.	☐
	a)(1)(iv)	For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi.	☐
	a)(2)	For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm 10 log B, where B is the 26 dB emission bandwidth in megahertz.	☒
	a)(3)	For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W.	☒
Test Setup			
Test Procedure	789033 D02 General UNII Test Procedures New Rules v01 <u>Measurement using a Power Meter (PM)</u> Measurements may be performed using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required. - Connect EUT's RF output power to power meter - Set EUT to be continuous transmission mode - Measurement the average output power using power meter and record the result - Repeat above steps for different test channel and other modulation type.		
Test Date	04/22/2015	Environmental condition	Temperature 23°C Relative Humidity 44% Atmospheric Pressure 1021mbar
Remark	Per KDB 662911 D01 Multiple Transmitter Output v02r01, the direction gain for horizontal polarization and vertical polarization is calculated separately. EUT is using Cross Band-polarized antenna, thus the array gain is 0, and directional gain = highest individual gain of both polarization antenna, so the directional gain will be either 14 dBi, 21 dBi or 24 dBi. For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.		
Result	☒ Pass ☐ Fail		

Test Data ☒ Yes ☐ N/A
Test Plot ☐ Yes (See below) ☒ N/A

Output Power measurement result for 5.3GHz

Antenna Type	Test mode	Freq (MHz)	CH	Conducted Power (dBm)			Limit (dBm)	Result
				Chain1	Chain2	Combined/Highest Power		
14dBi	802.11a	5260	Low	11.27	10.92	11.27	16	Pass
		5280	Mid	10.83	10.78	10.83	16	Pass
		5320	High	10.62	10.63	10.63	16	Pass
	802.11n-HT20	5260	Low	11.25	10.88	14.08	16	Pass
		5280	Mid	11.29	11.12	14.22	16	Pass
		5320	High	11.05	10.99	14.03	16	Pass
	802.11n-HT40	5270	Low	11.90	11.80	14.86	16	Pass
		5310	Mid	11.42	11.46	14.45	16	Pass
	802.11ac	5290	High	11.31	11.32	14.33	16	Pass
21dBi	802.11a	5260	Low	3.16	2.45	3.16	9	Pass
		5280	Mid	3.30	3.10	3.30	9	Pass
		5320	High	3.00	3.03	3.03	9	Pass
	802.11n-HT20	5260	Low	3.16	2.34	5.78	9	Pass
		5280	Mid	3.23	3.96	6.62	9	Pass
		5320	High	3.16	2.90	6.04	9	Pass
	802.11n-HT40	5270	Low	5.85	5.46	8.67	9	Pass
		5310	Mid	5.70	5.43	8.58	9	Pass
	802.11ac	5290	High	2.64	2.08	5.38	9	Pass
24dBi	802.11a	5260	Low	-0.02	-0.62	-0.02	6	Pass
		5280	Mid	0.08	-0.24	0.08	6	Pass
		5320	High	0.11	-0.50	0.11	6	Pass
	802.11n-HT20	5260	Low	0.28	-0.67	2.84	6	Pass
		5280	Mid	0.22	-0.39	2.94	6	Pass
		5320	High	0.08	-0.48	2.82	6	Pass
	802.11n-HT40	5270	Low	2.92	2.58	5.76	6	Pass
		5310	Mid	2.71	2.41	5.57	6	Pass
	802.11ac	5290	High	1.72	1.22	4.49	6	Pass

Output Power measurement result for 5.5GHz

Antenna Type	Test mode	Freq (MHz)	CH	Conducted Power (dBm)			Limit (dBm)	Result
				Chain1	Chain2	Combined/Highest Power		
14dBi	802.11a	5500	Low	10.64	10.59	10.64	16	Pass
		5580	Mid	10.48	10.48	10.48	16	Pass
		5700	High	10.50	10.51	10.51	16	Pass
	802.11n-HT20	5500	Low	11.04	10.83	13.95	16	Pass
		5580	Mid	10.87	10.88	13.89	16	Pass
		5700	High	10.82	10.93	13.89	16	Pass
	802.11n-HT40	5510	Low	12.44	12.42	15.44	16	Pass
		5550	Mid	12.44	12.48	15.47	16	Pass
		5670	High	12.86	12.88	15.88	16	Pass
	802.11ac	5530	Low	11.41	10.96	14.20	16	Pass
21dBi	802.11a	5500	Low	2.87	2.73	2.87	9	Pass
		5580	Mid	2.53	2.79	2.79	9	Pass
		5700	High	3.52	3.53	3.53	9	Pass
	802.11n-HT20	5500	Low	3.90	3.64	6.78	9	Pass
		5580	Mid	3.54	3.76	6.66	9	Pass
		5700	High	3.31	3.59	6.46	9	Pass
	802.11n-HT40	5510	Low	5.36	5.39	8.39	9	Pass
		5550	Mid	5.27	5.35	8.32	9	Pass
		5670	High	5.25	5.32	8.30	9	Pass
	802.11ac	5530	Low	3.10	3.19	6.16	9	Pass
24dBi	802.11a	5500	Low	-0.04	-0.11	-0.04	6	Pass
		5580	Mid	-0.69	-0.21	-0.21	6	Pass
		5700	High	0.54	0.42	0.54	6	Pass
	802.11n-HT20	5500	Low	1.02	0.85	3.95	6	Pass
		5580	Mid	0.41	0.90	3.67	6	Pass
		5700	High	0.52	0.31	3.43	6	Pass
	802.11n-HT40	5510	Low	2.39	2.48	5.45	6	Pass
		5550	Mid	2.15	2.39	5.28	6	Pass
		5670	High	2.21	2.23	5.23	6	Pass
	802.11ac	5530	Low	1.20	1.11	4.17	6	Pass

Output Power measurement result for CROSS BAND channels (in band 5470-5725MHz)

Type	Test mode	Freq (MHz)	CH	Conducted Power (dBm)			Limit (dBm)	Result
				Chain1	Chain2	Combined/Highest Power		
14dBi	802.11a	5720	CROSS	10.85	10.86	10.86	16	Pass
	802.11n-HT20	5720	CROSS	11.25	11.27	14.27	16	Pass
	802.11n-HT40	5710	CROSS	12.39	12.46	15.44	16	Pass
	802.11ac	5690	CROSS	12.75	12.82	15.80	16	Pass
21dBi	802.11a	5720	CROSS	3.59	3.63	3.63	9	Pass
	802.11n-HT20	5720	CROSS	3.40	3.53	6.48	9	Pass
	802.11n-HT40	5710	CROSS	5.23	5.10	8.18	9	Pass
	802.11ac	5690	CROSS	5.01	5.12	8.08	9	Pass
24dBi	802.11a	5720	CROSS	0.53	0.52	0.53	6	Pass
	802.11n-HT20	5720	CROSS	0.41	0.38	3.41	6	Pass
	802.11n-HT40	5710	CROSS	2.21	2.07	5.15	6	Pass
	802.11ac	5690	CROSS	2.05	2.02	5.05	6	Pass

10.4 Peak Spectral Density

Requirement(s):

Spec	Item	Requirement	Applicable
§ 15.407	a)(1)(i)	For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band.	☐
	a)(1)(ii)	For an indoor access point operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band.	☐
	a)(2)	For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band.	☒
	a)(3)	For the band 5.725-5.85 GHz, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band.	☒
Test Setup			
Test Procedure	789033 D02 General UNII Test Procedures New Rules v01, II.F. Method SA-1 <u>Maximum spectral density measurement procedure</u> - Set span to encompass the entire emission bandwidth (EBW) (or, alternatively, the entire 99% occupied bandwidth) of the signal. - Set RBW = 1 MHz - Set VBW ≥ 3 MHz - Detector = RMS. - Sweep time = auto couple. - Trace mode = max hold. - Trace average at least 100 traces in power averaging - Use the peak marker function to determine the maximum amplitude level within the RBW. Apply correction to the result if different RBW is used.		
Test Date	04/22/2015	Environmental condition	Temperature 22°C Relative Humidity 46% Atmospheric Pressure 1020mbar
Remark	Per KDB 662911 D01 Multiple Transmitter Output v02r01, the direction gain for horizontal polarization and vertical polarization is calculated separately. EUT is using Cross Band-polarized antenna, thus the array gain is 0, and directional gain = highest individual gain of both polarization antenna, so the directional gain will be either 14 dBi, 21 dBi or 24 dBi. For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.		
Result	☒ Pass ☐ Fail		

Equipment Setting

TEST	RBW	VBW	SPAN	Detector	SWEEP	Trace	NOTES
PSD	1MHz	≥3MHz	>EBW	RMS	Auto	Average	-

Test Data ☒ Yes ☐ N/A

Test Plot ☒ Yes (See below) ☐ N/A

PSD measurement result for 5.3GHz

Antenna Type	Test mode	Freq (MHz)	CH	Conducted PSD (dBm/MHz)			Limit (dBm/MHz)	Result
				Chain1	Chain2	Combined/Highest PSD		
14dBi	802.11a	5260	Low	0.06	-0.16	0.06	3	Pass
		5280	Mid	-0.10	-0.51	-0.10	3	Pass
		5320	High	-0.25	-0.42	-0.25	3	Pass
	802.11n-HT20	5260	Low	-0.15	-0.53	2.67	3	Pass
		5280	Mid	-0.16	-0.10	2.88	3	Pass
		5320	High	-0.19	-0.23	2.80	3	Pass
	802.11n-HT40	5270	Low	-2.46	-2.75	0.40	3	Pass
		5310	Mid	-2.89	-2.68	0.23	3	Pass
	802.11ac	5290	High	-6.21	-4.63	-2.34	3	Pass
21dBi	802.11a	5260	Low	-8.01	-8.50	-8.01	-4	Pass
		5280	Mid	-7.91	-8.01	-7.91	-4	Pass
		5320	High	-8.10	-7.77	-7.77	-4	Pass
	802.11n-HT20	5260	Low	-8.13	-8.86	-5.47	-4	Pass
		5280	Mid	-8.26	-8.38	-5.31	-4	Pass
		5320	High	-8.18	-8.26	-5.21	-4	Pass
	802.11n-HT40	5270	Low	-8.62	-8.91	-5.75	-4	Pass
		5310	Mid	-8.60	-8.74	-5.66	-4	Pass
	802.11ac	5290	High	-12.87	-15.29	-10.90	-4	Pass
24dBi	802.11a	5260	Low	-11.25	-11.73	-11.25	-7	Pass
		5280	Mid	-10.99	-11.25	-10.99	-7	Pass
		5320	High	-10.83	-11.38	-10.83	-7	Pass
	802.11n-HT20	5260	Low	-11.06	-11.90	-8.45	-7	Pass
		5280	Mid	-11.04	-11.83	-8.41	-7	Pass
		5320	High	-11.18	-11.74	-8.44	-7	Pass
	802.11n-HT40	5270	Low	-11.64	-11.81	-8.71	-7	Pass
		5310	Mid	-11.64	-11.91	-8.76	-7	Pass
	802.11ac	5290	High	-13.05	-13.37	-10.20	-7	Pass

PSD measurement result for 5.5GHz

Antenna Type	Test mode	Freq (MHz)	CH	Conducted PSD (dBm/MHz)			Limit (dBm/MHz)	Result
				Chain1	Chain2	Combined/Highest PSD		
14dBi	802.11a	5500	Low	-0.28	-0.64	-0.28	3	Pass
		5580	Mid	-0.48	-0.91	-0.48	3	Pass
		5700	High	-0.61	-0.38	-0.38	3	Pass
	802.11n-HT20	5500	Low	-0.34	-0.49	2.60	3	Pass
		5580	Mid	-0.35	-0.46	2.61	3	Pass
		5700	High	-0.33	-0.27	2.71	3	Pass
	802.11n-HT40	5510	Low	-1.85	-1.87	1.15	3	Pass
		5550	Mid	-1.97	-1.98	1.04	3	Pass
		5670	High	-1.25	-1.07	1.85	3	Pass
	802.11ac	5530	Low	-4.98	-6.57	-2.69	3	Pass
21dBi	802.11a	5500	Low	-8.17	-8.37	-8.17	-4	Pass
		5580	Mid	-8.60	-7.99	-7.99	-4	Pass
		5700	High	-7.58	-7.63	-7.58	-4	Pass
	802.11n-HT20	5500	Low	-7.60	-7.83	-4.70	-4	Pass
		5580	Mid	-7.77	-7.59	-4.67	-4	Pass
		5700	High	-8.15	-7.55	-4.83	-4	Pass
	802.11n-HT40	5510	Low	-9.13	-8.99	-6.05	-4	Pass
		5550	Mid	-9.07	-9.01	-6.03	-4	Pass
		5670	High	-9.21	-9.08	-6.13	-4	Pass
	802.11ac	5530	Low	-13.70	-14.26	-10.96	-4	Pass
24dBi	802.11a	5500	Low	-11.12	-11.20	-11.12	-7	Pass
		5580	Mid	-11.72	-11.27	-11.27	-7	Pass
		5700	High	-10.59	-10.73	-10.59	-7	Pass
	802.11n-HT20	5500	Low	-10.33	-10.63	-7.47	-7	Pass
		5580	Mid	-10.92	-10.41	-7.65	-7	Pass
		5700	High	-10.94	-10.99	-7.95	-7	Pass
	802.11n-HT40	5510	Low	-12.00	-11.78	-8.88	-7	Pass
		5550	Mid	-12.10	-12.02	-9.05	-7	Pass
		5670	High	-12.15	-12.00	-9.06	-7	Pass
	802.11ac	5530	Low	-16.14	-16.35	-13.23	-7	Pass

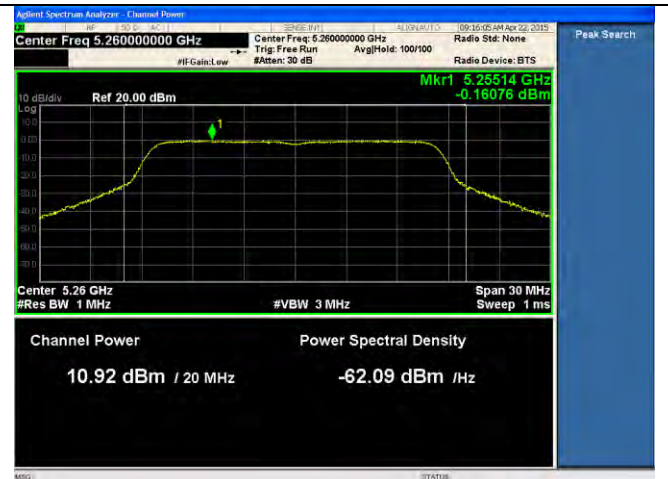
PSD measurement result for CROSS BAND channels

Type	Test mode	Freq (MHz)	CH	Conducted PSD (dBm/MHz)			Limit (dBm/MHz)	Result
				Chain1	Chain2	Combined/Highest PSD		
14dBi	802.11a	5720	CROSS	-0.23	-0.35	-0.23	3	Pass
	802.11n-HT20	5720	CROSS	-0.14	-0.16	2.86	3	Pass
	802.11n-HT40	5710	CROSS	-1.89	-1.96	1.09	3	Pass
	802.11ac	5690	CROSS	-4.32	-4.14	-1.22	3	Pass
21dBi	802.11a	5720	CROSS	-7.70	-7.44	-7.44	-4	Pass
	802.11n-HT20	5720	CROSS	-7.98	-7.91	-4.56	-4	Pass
	802.11n-HT40	5710	CROSS	-9.24	-9.28	-4.93	-4	Pass
	802.11ac	5690	CROSS	-12.50	-12.23	-6.25	-4	Pass
24dBi	802.11a	5720	CROSS	-10.63	-10.51	-10.51	-7	Pass
	802.11n-HT20	5720	CROSS	-10.94	-10.85	-7.56	-7	Pass
	802.11n-HT40	5710	CROSS	-12.16	-12.24	-7.88	-7	Pass
	802.11ac	5690	CROSS	-15.53	-15.56	-9.19	-7	Pass

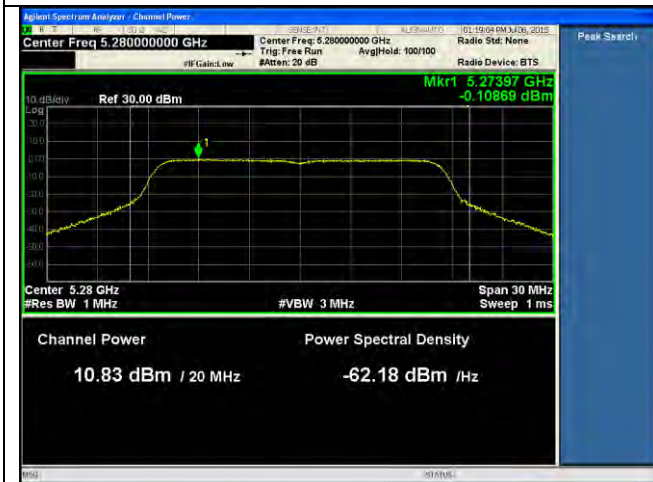
Test Plots



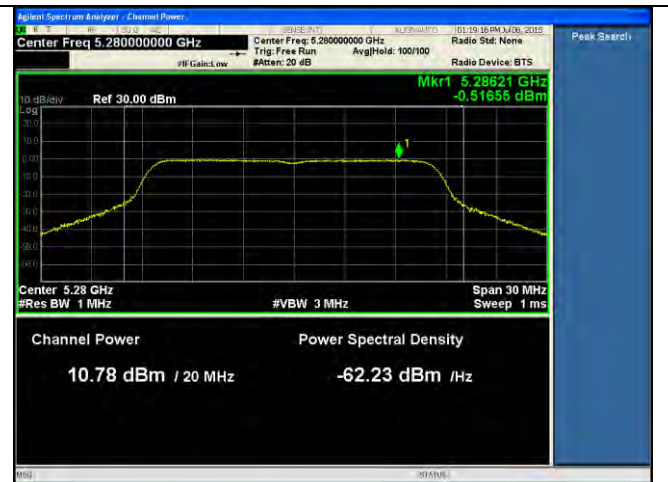
14dB ANT-PSD-802.11a-5260M-chain1



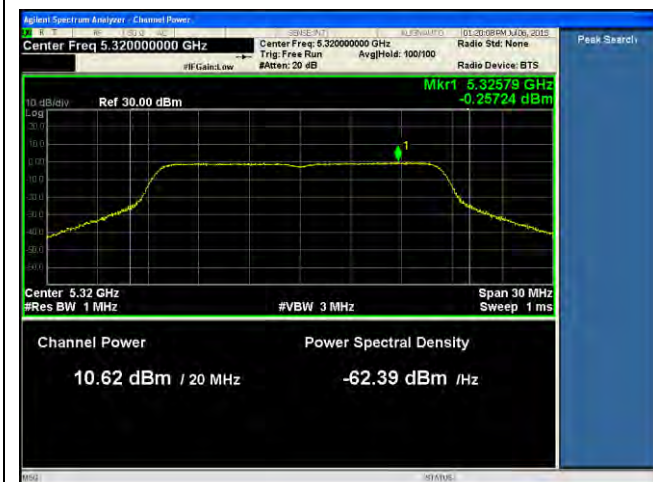
14dB ANT-PSD-802.11a-5260M-chain2



14dB ANT-PSD-802.11a-5280M-chain1



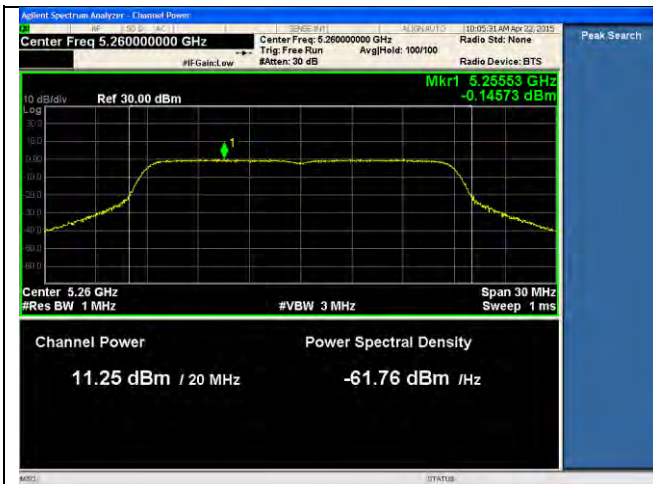
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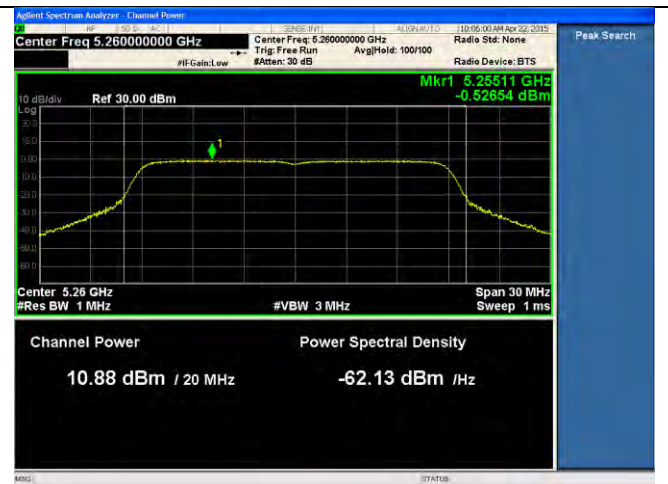
14dB ANT-PSD-802.11a-5320M-chain1



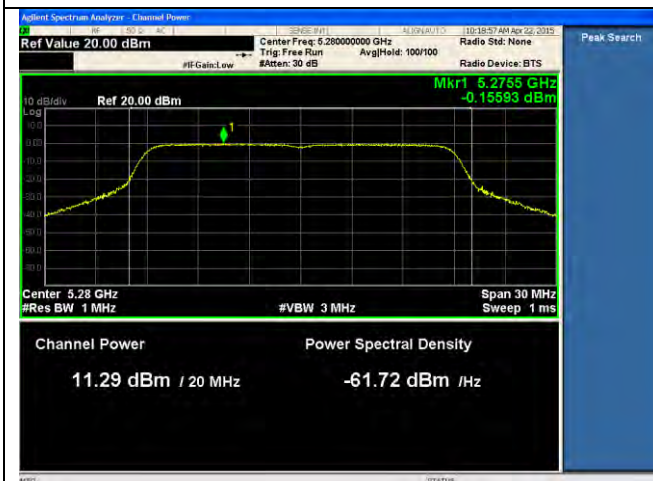
14dB ANT-PSD-802.11a-5320M-chain2



14dBi ANT-PSD-802.11n-HT20-5260M-chain1



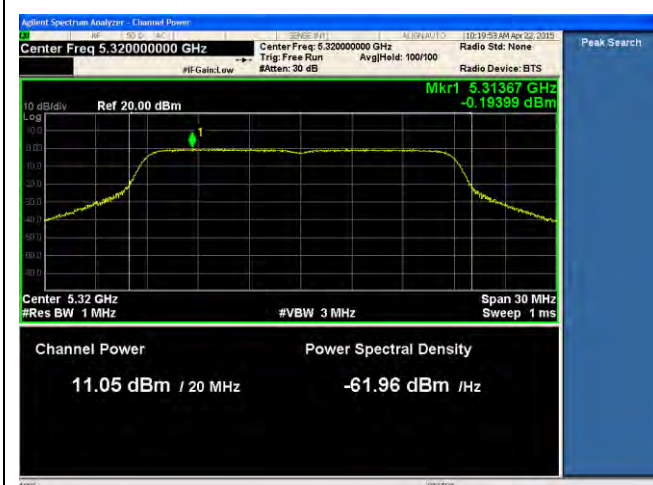
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14dBi ANT-PSD-802.11n-HT20-5280M-chain1



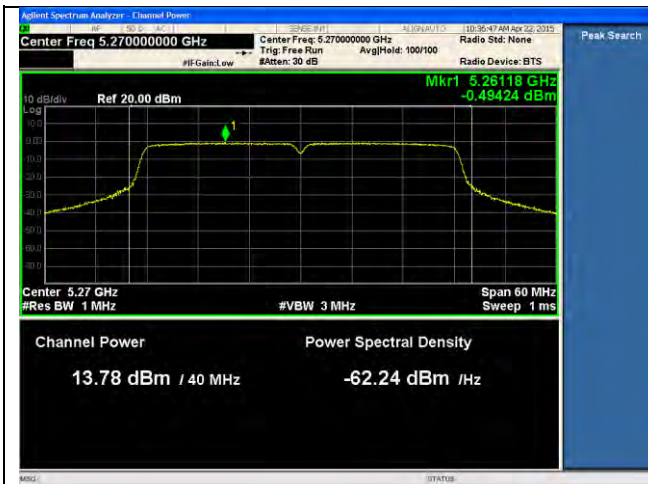
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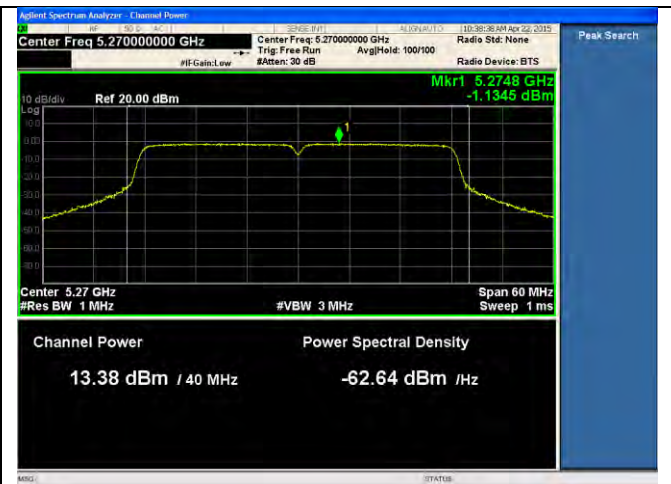
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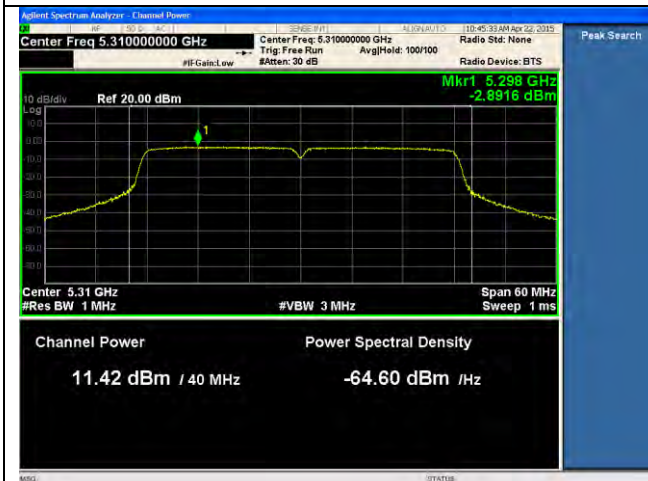
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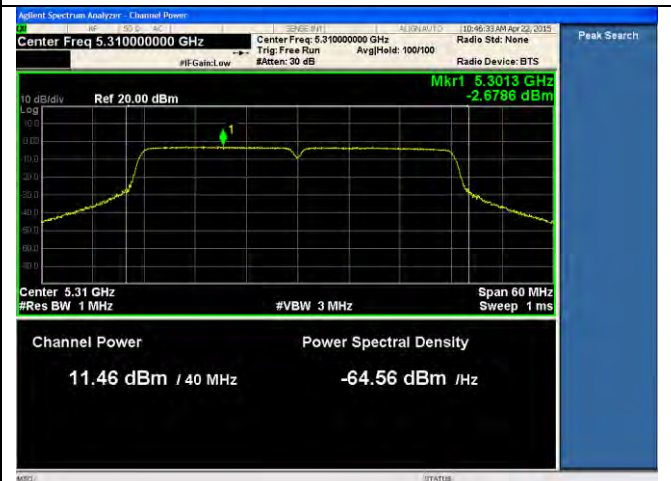
14dB ANT-PSD-802.11n-HT40-5270M-chain1



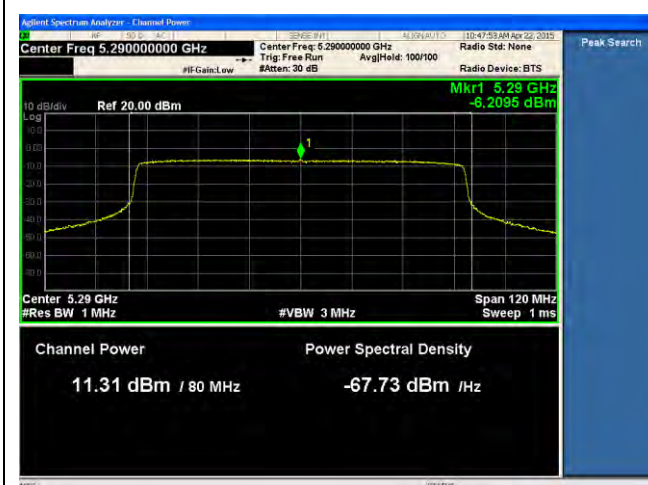
14dB ANT-PSD-802.11n-HT40-5270M-chain2



14dB ANT-PSD-802.11n-HT40-5310M-chain1



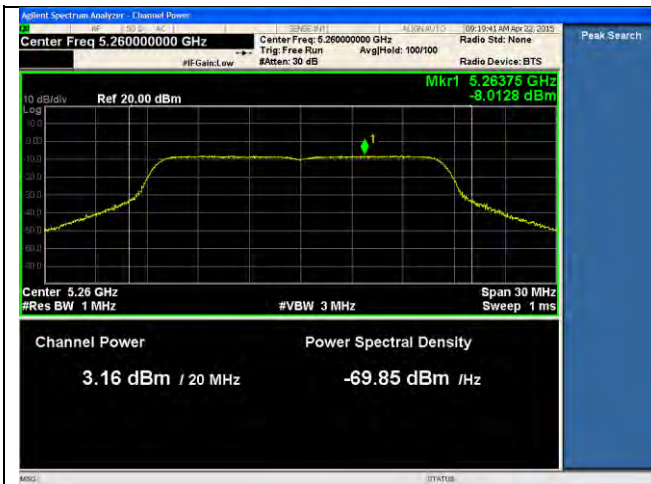
14dB ANT-PSD-802.11n-HT40-5310M-chain2



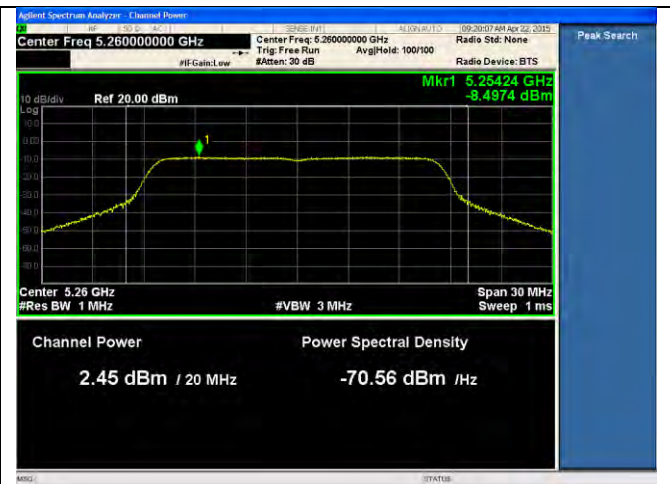
14dB ANT-PSD-802.11ac-5290M-chain1



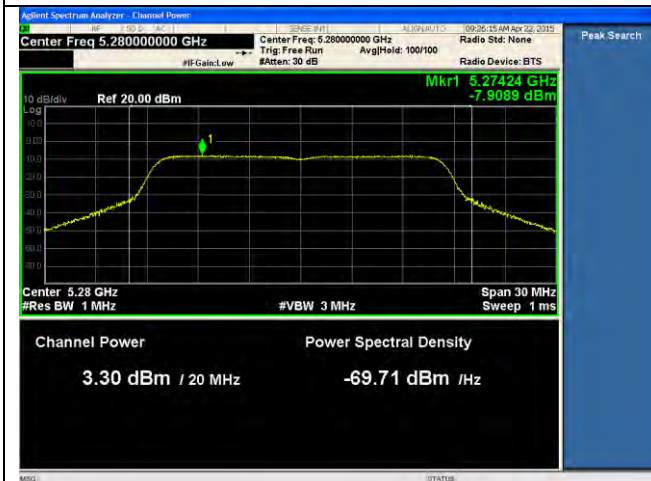
14dB ANT-PSD-802.11ac-5290M-chain2



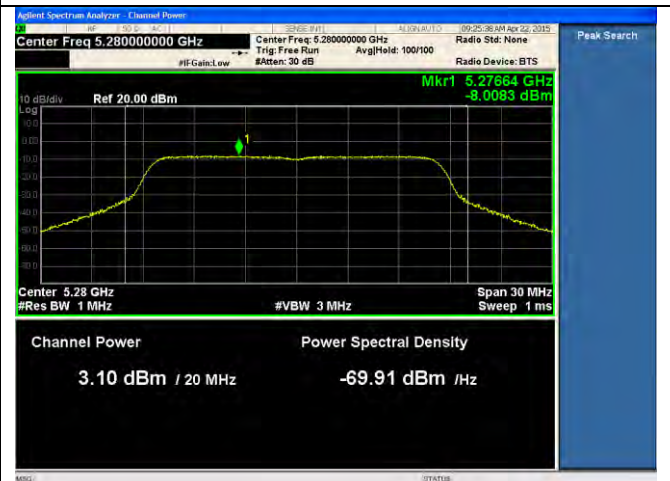
21dBi ANT-PSD-802.11a-5260M-chain1



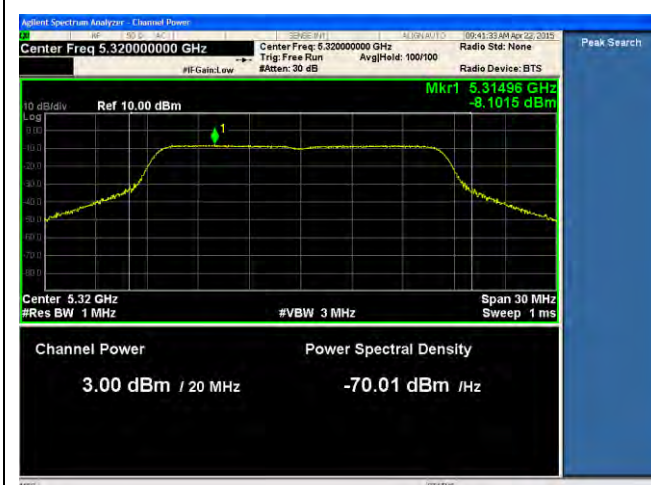
21dBi ANT-PSD-802.11a-5260M-chain2



21dBi ANT-PSD-802.11a-5280M-chain1



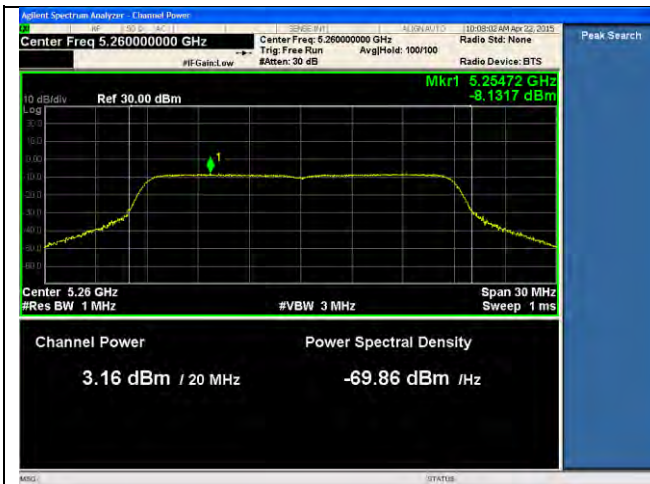
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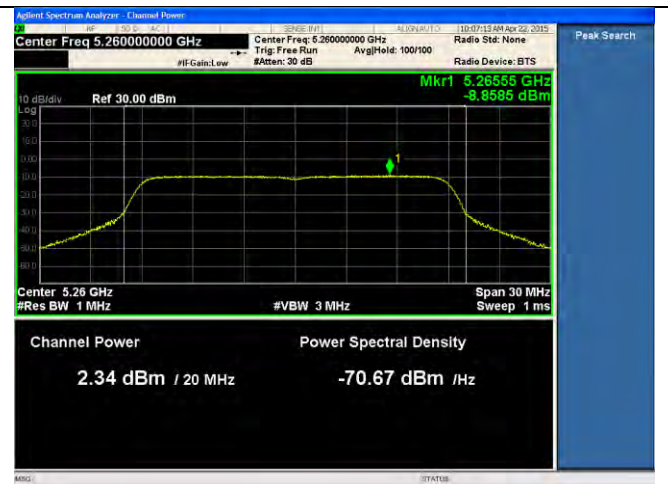
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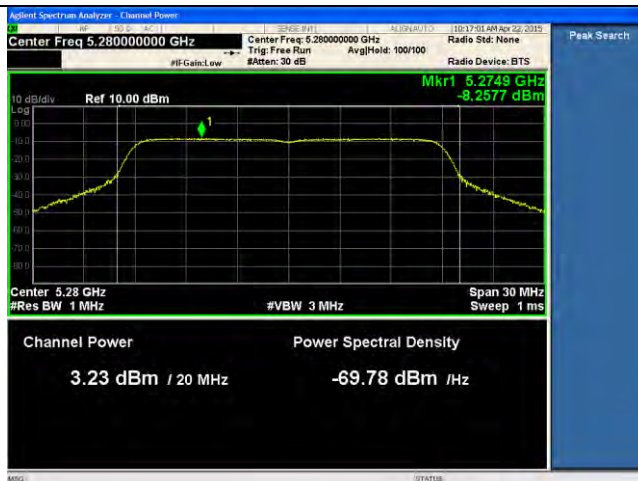
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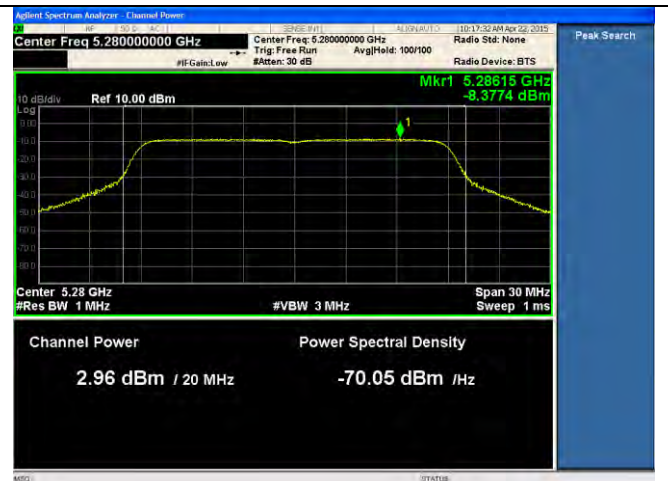
21dB ANT-PSD-802.11n-HT20-5260M-chain1



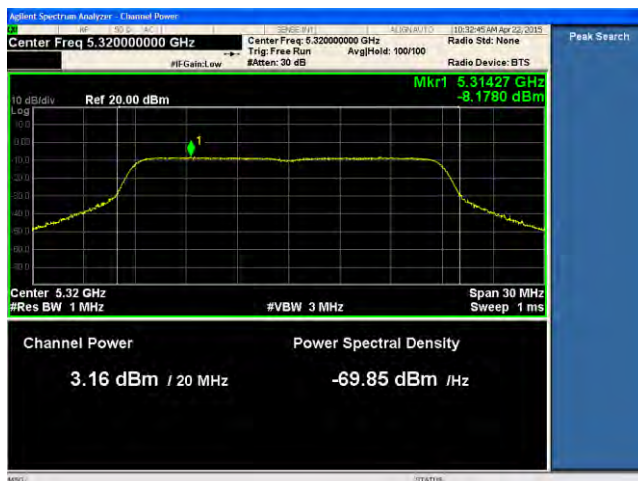
21dB ANT-PSD-802.11n-HT20-5260M-chain2



21dB ANT-PSD-802.11n-HT20-5280M-chain1



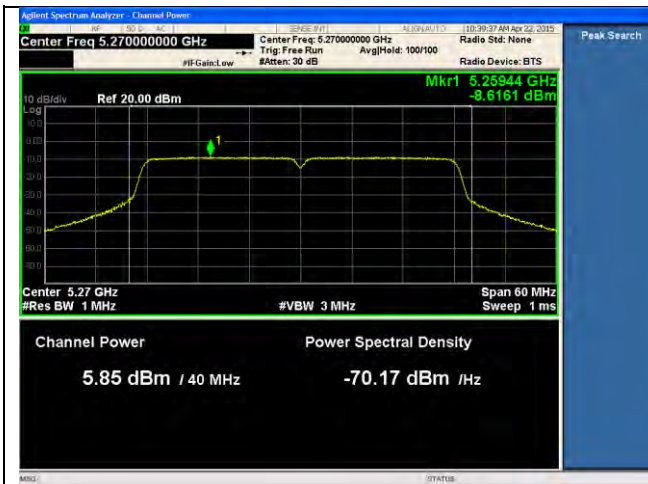
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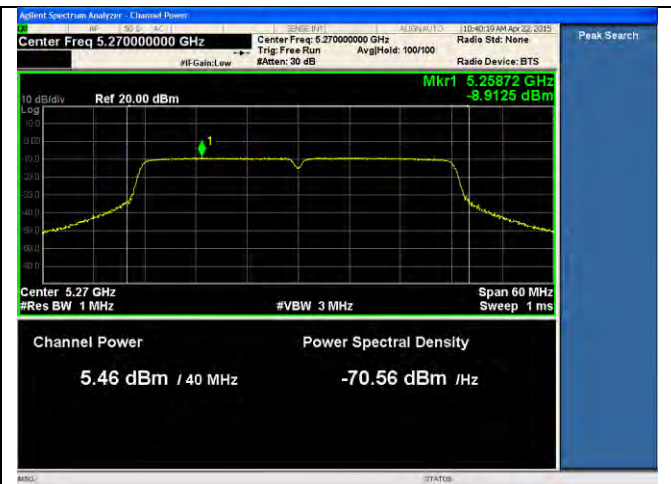
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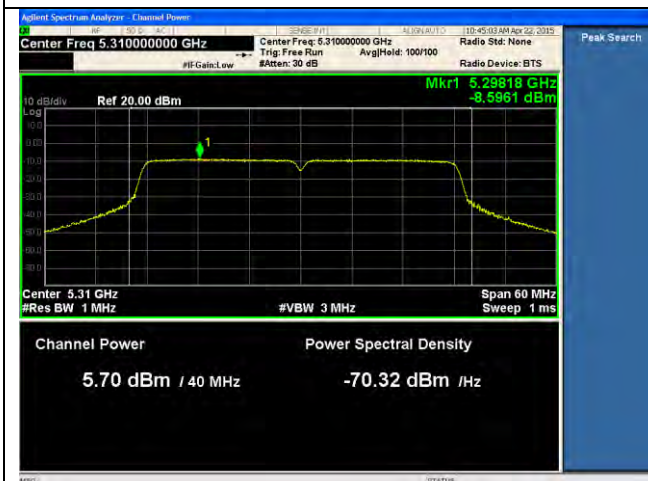
21dB ANT-PSD-802.11n-HT20-5320M-chain2



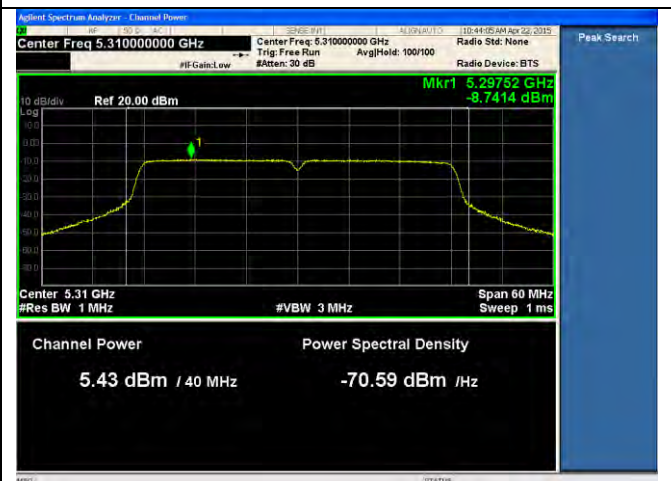
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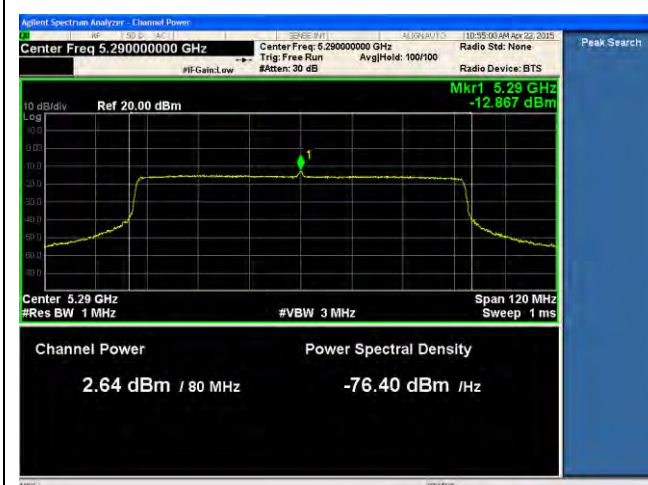
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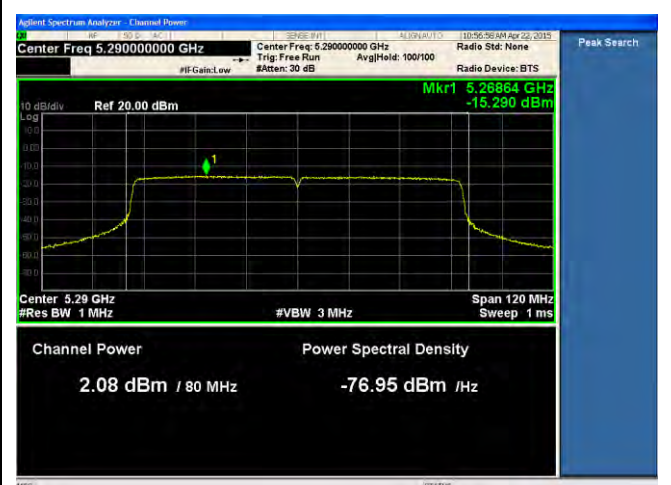
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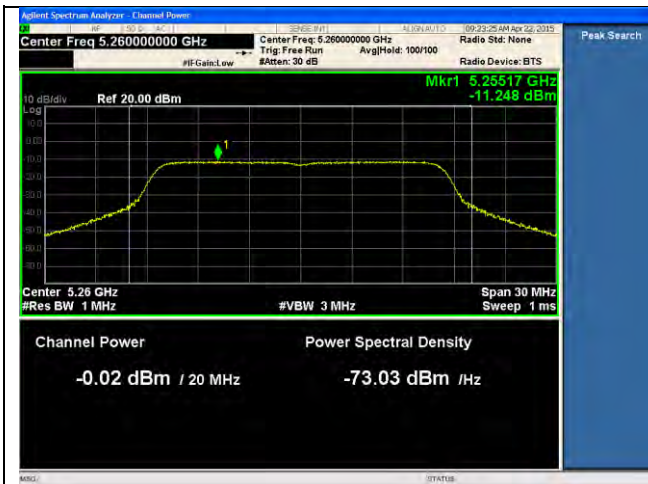
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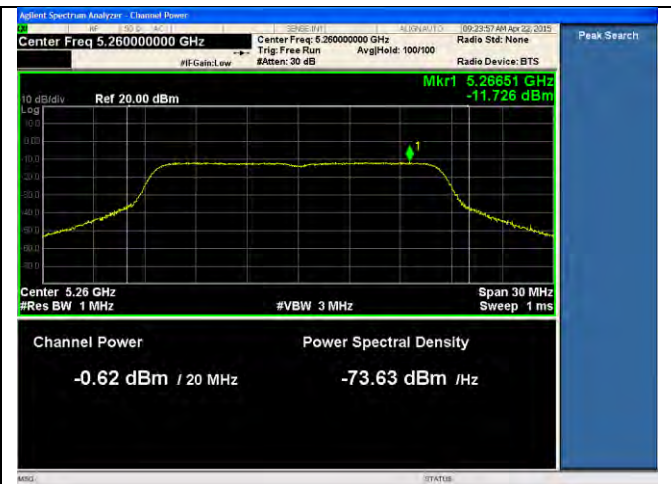
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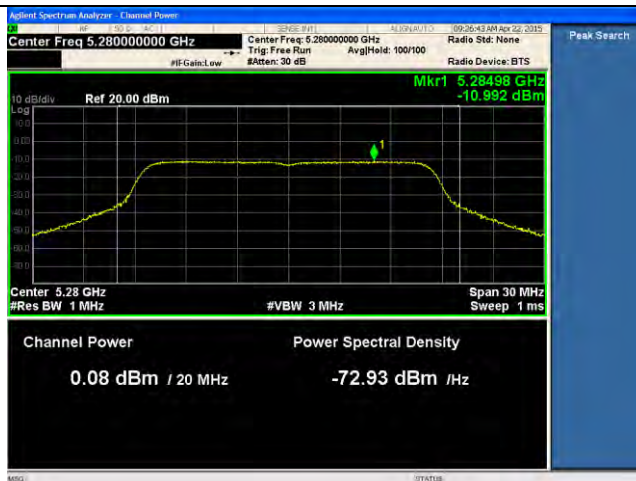
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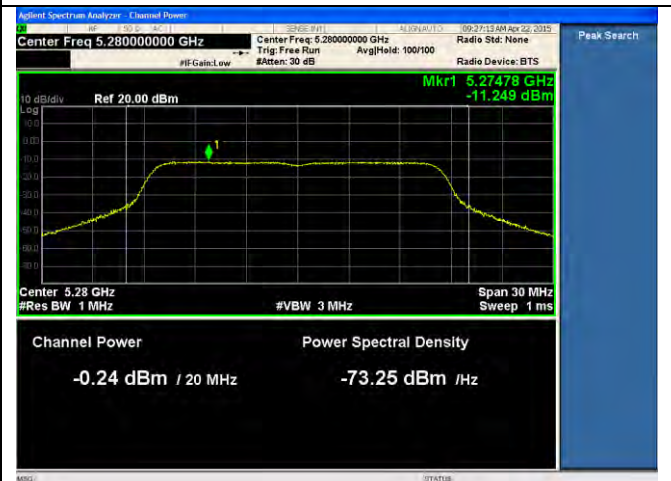
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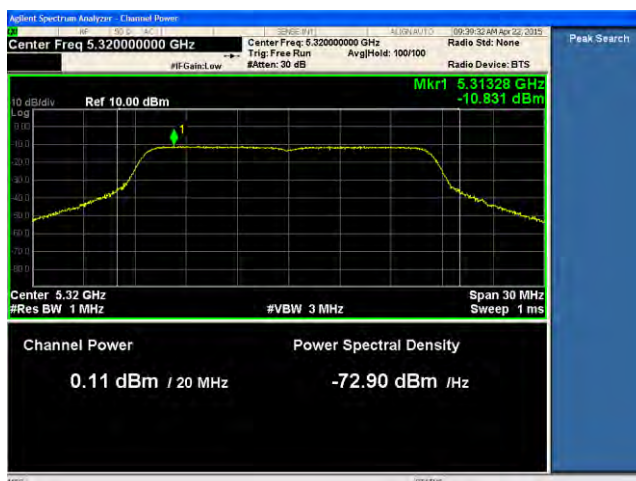
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24dBi ANT-PSD-802.11a-5280M-chain1



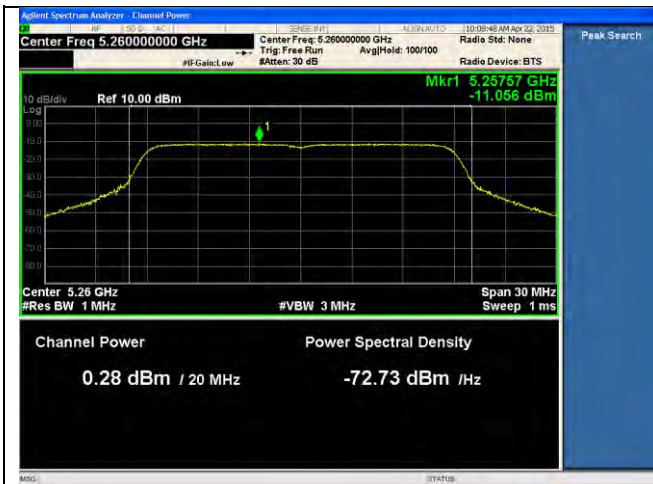
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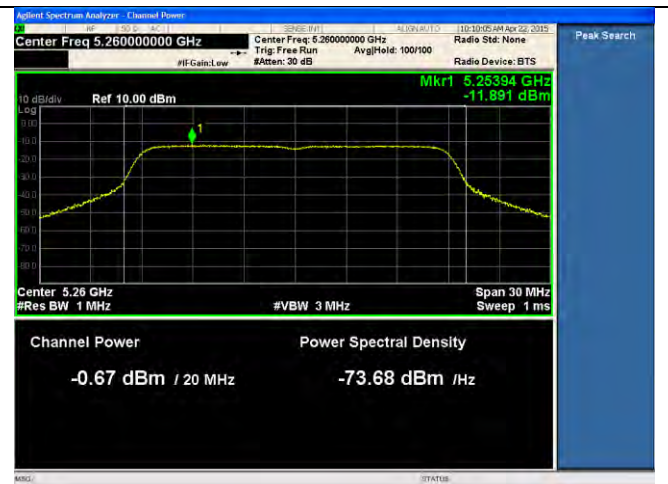
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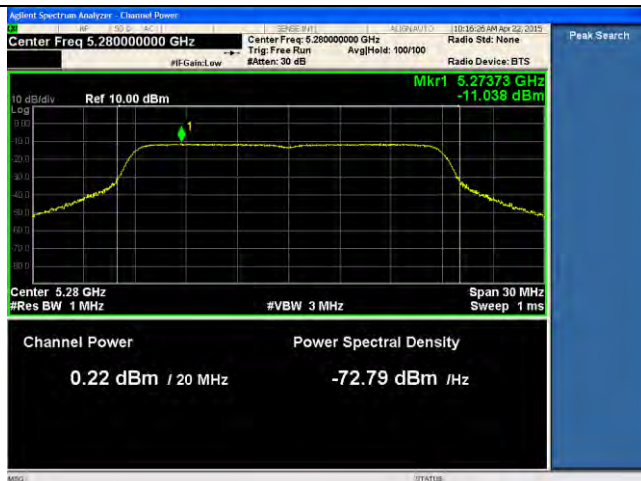
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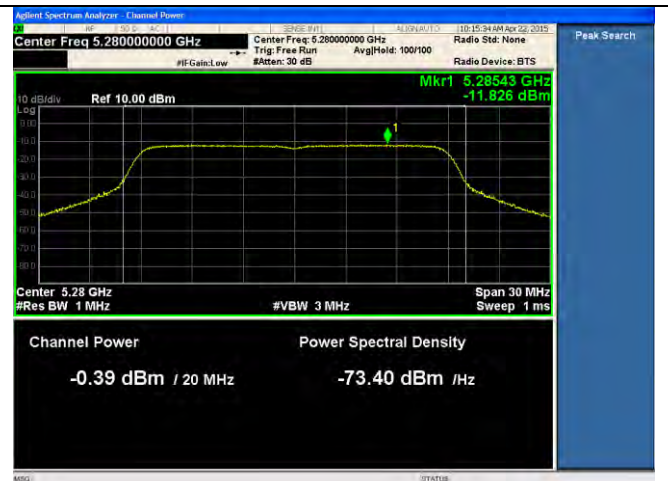
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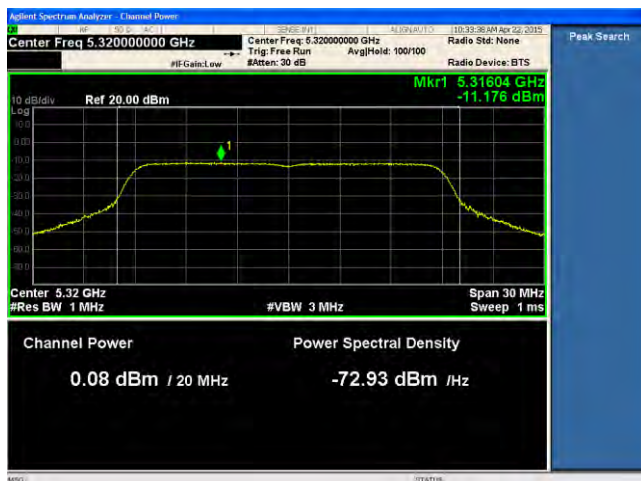
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24dB ANT-PSD-802.11n-HT20-5280M-chain1



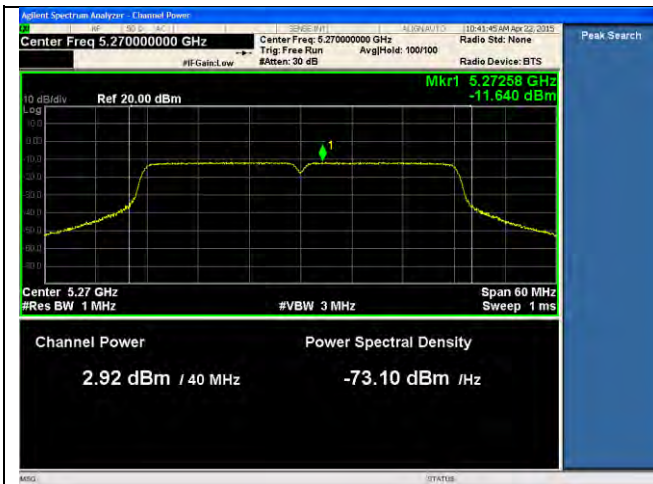
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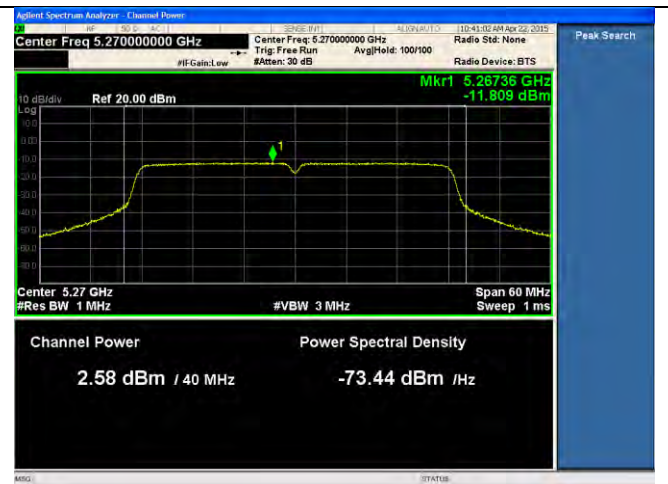
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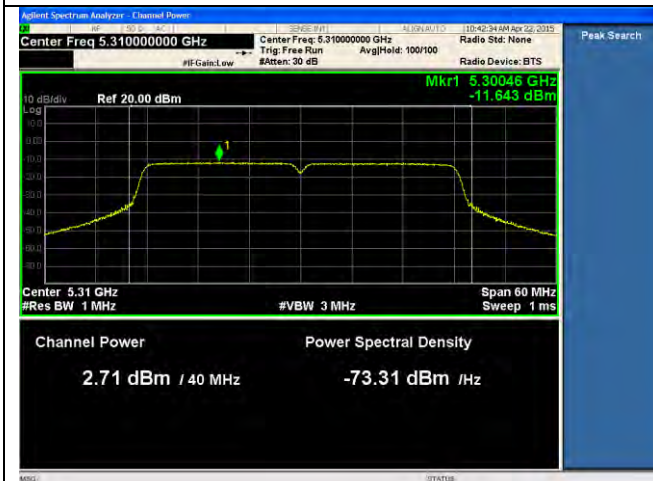
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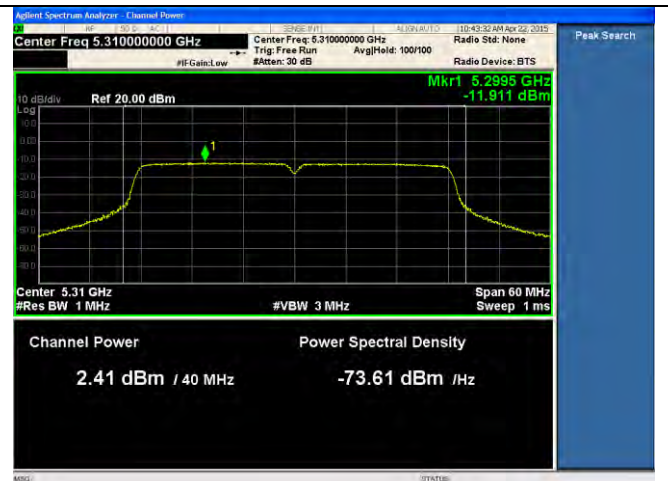
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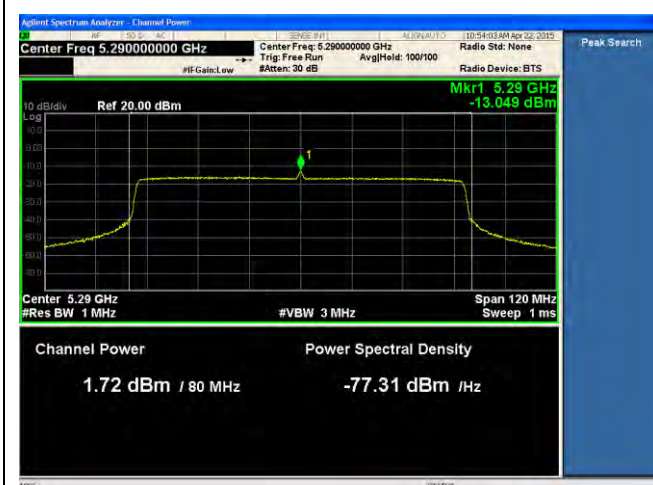
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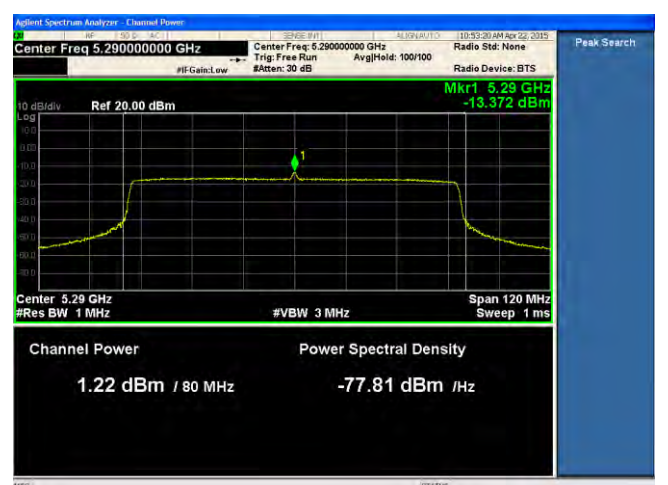
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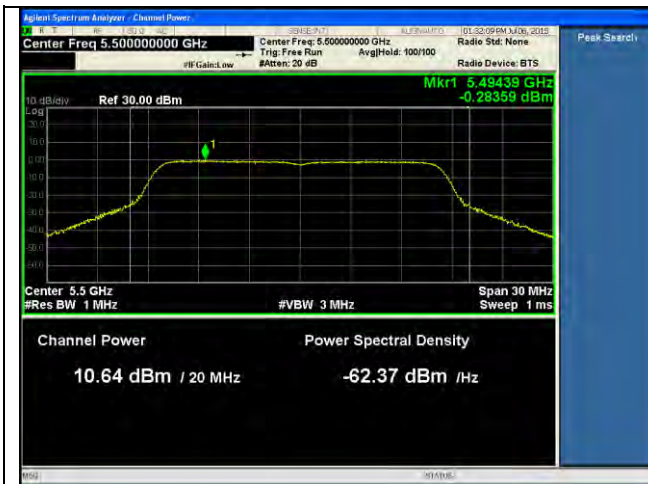
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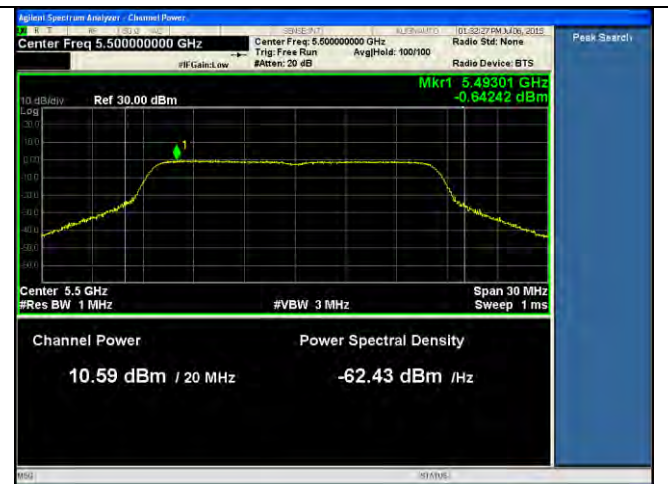
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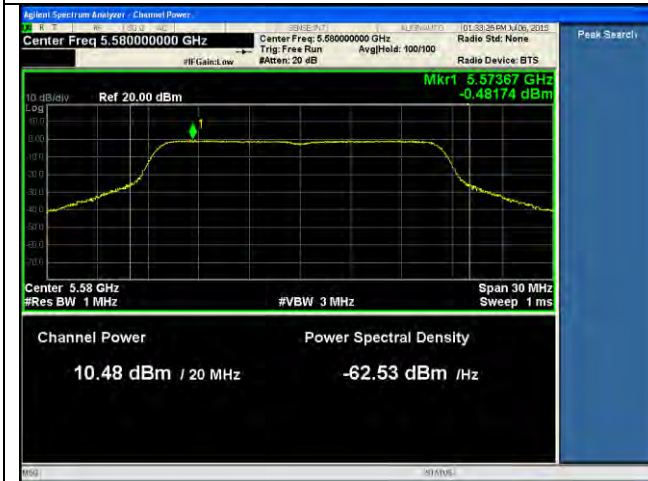
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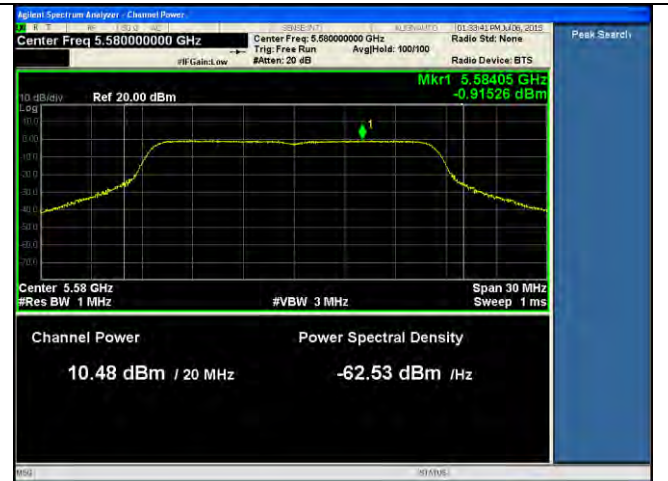
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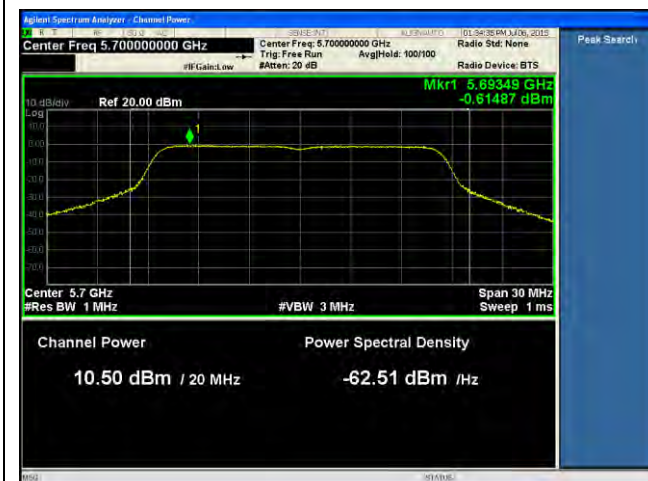
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14dB ANT-PSD-802.11a-5580M-chain1



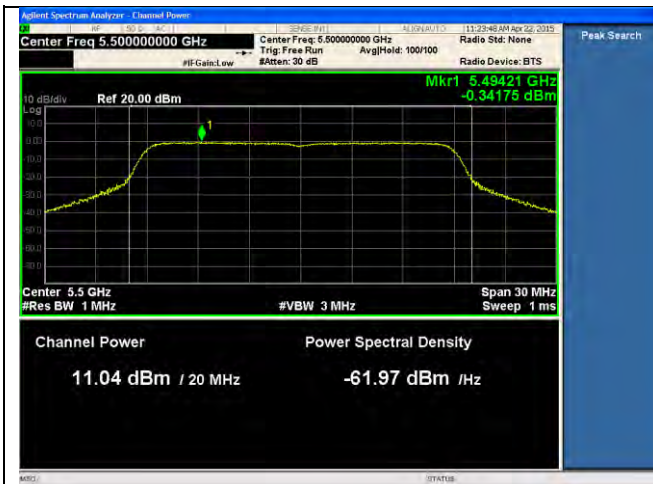
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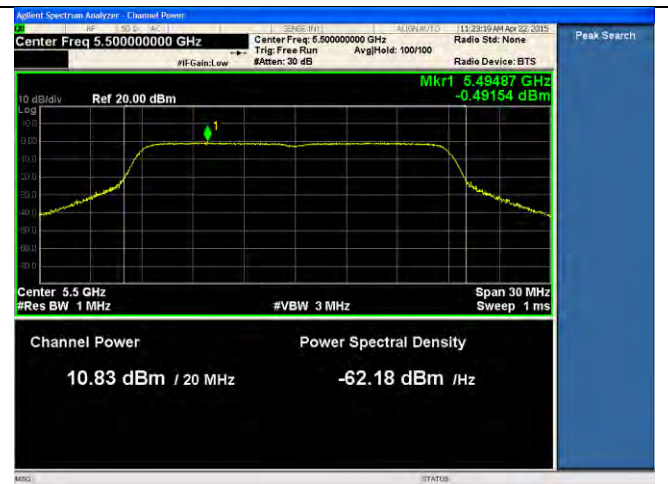
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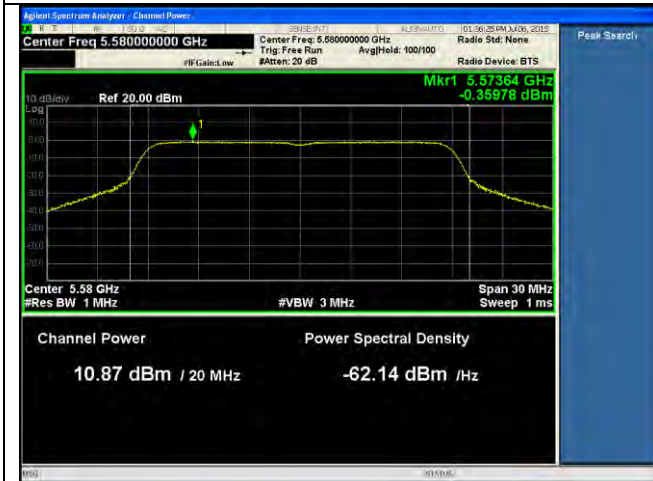
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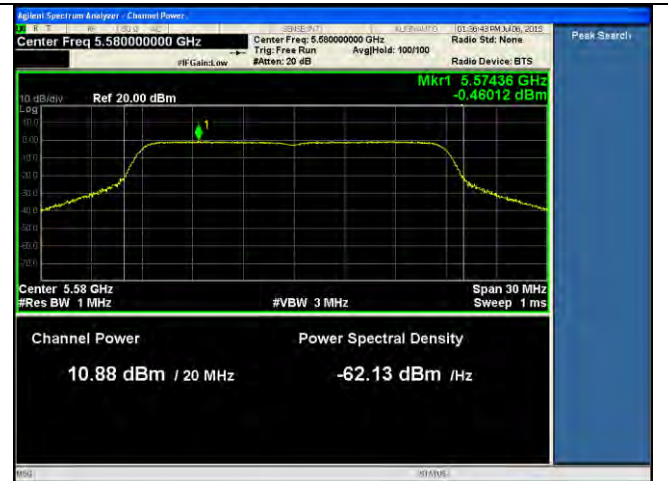
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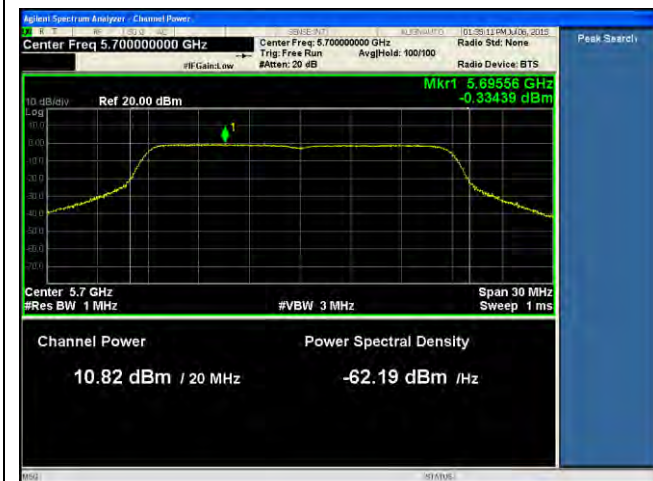
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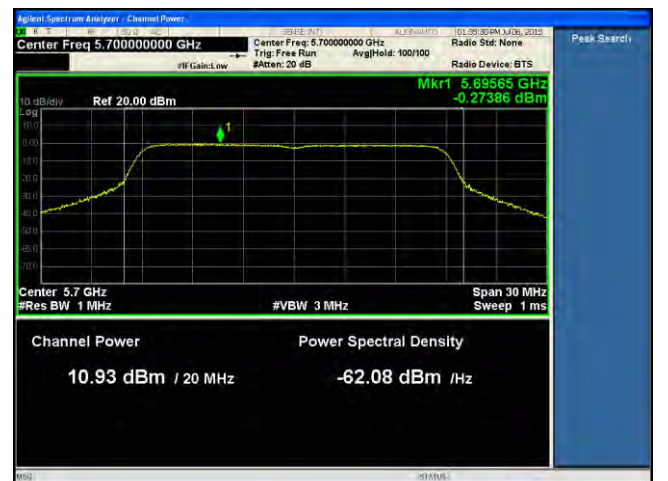
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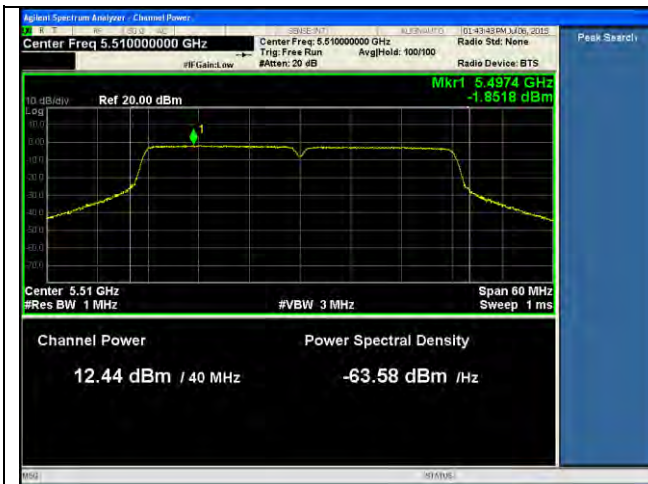
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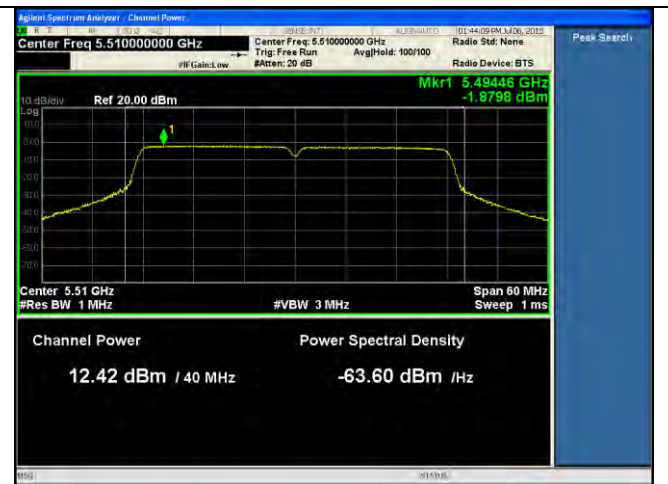
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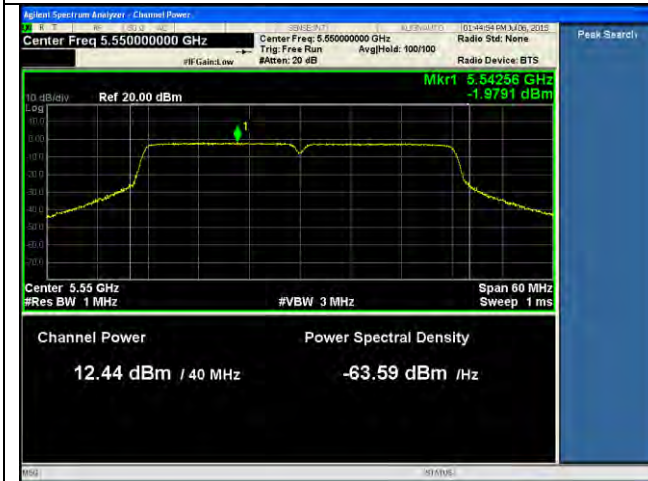
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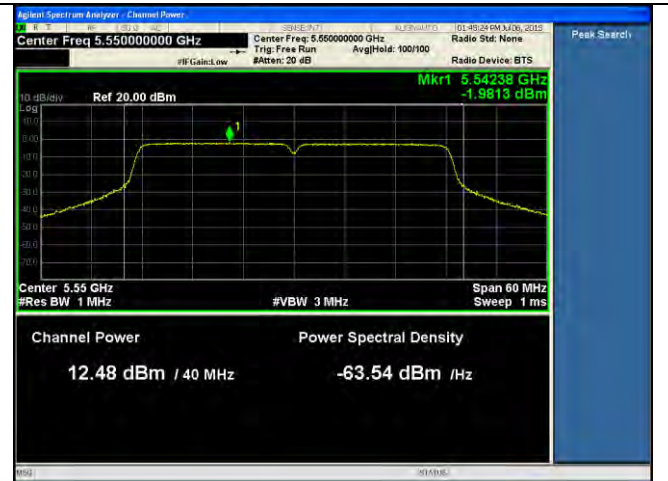
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14dBi ANT-PSD-802.11n-HT40-5510M-chain2



14dBi ANT-PSD-802.11n-HT40-5550M-chain1



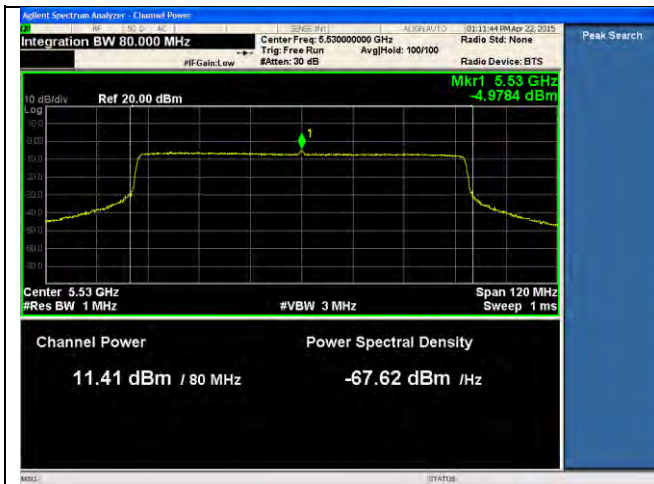
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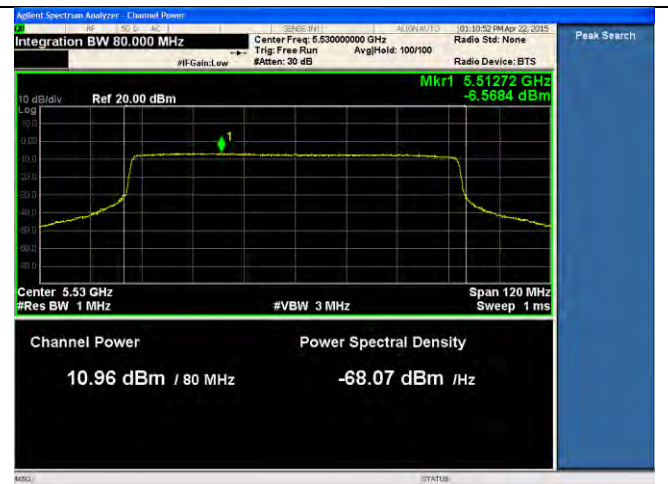
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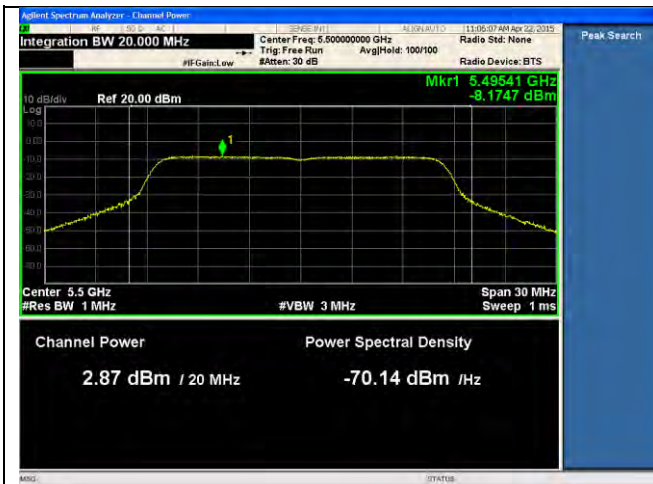
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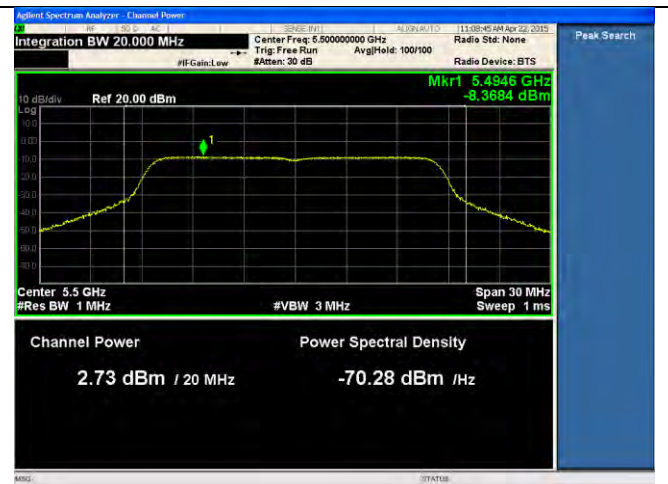
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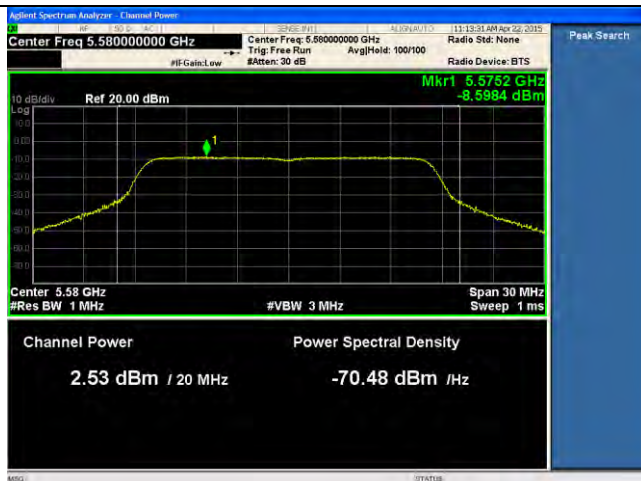
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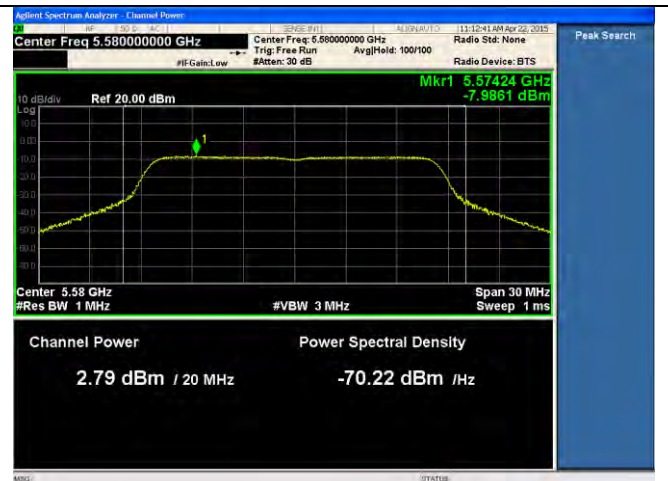
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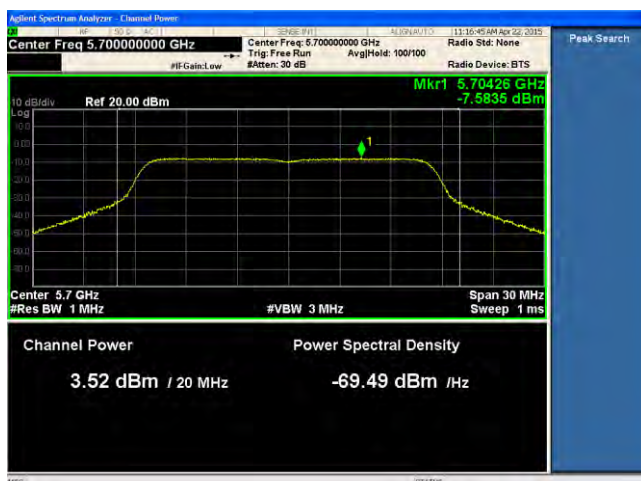
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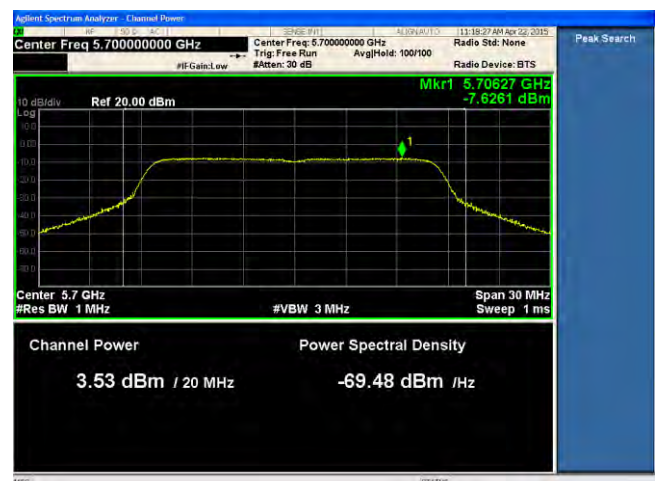
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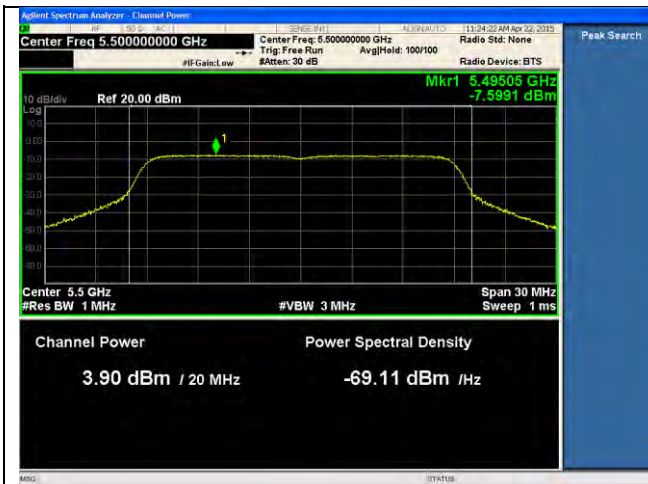
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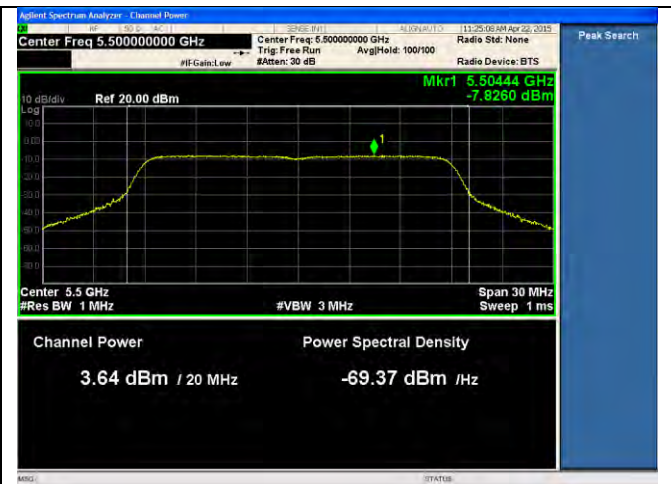
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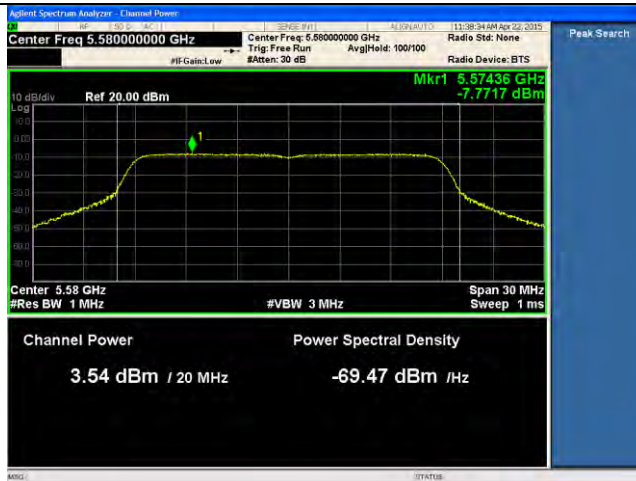
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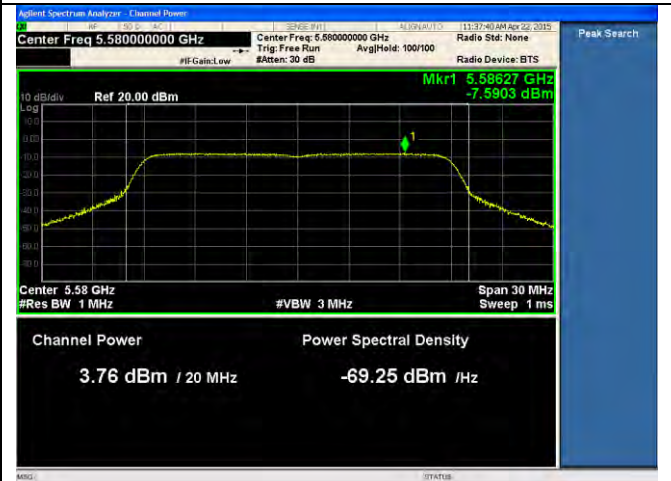
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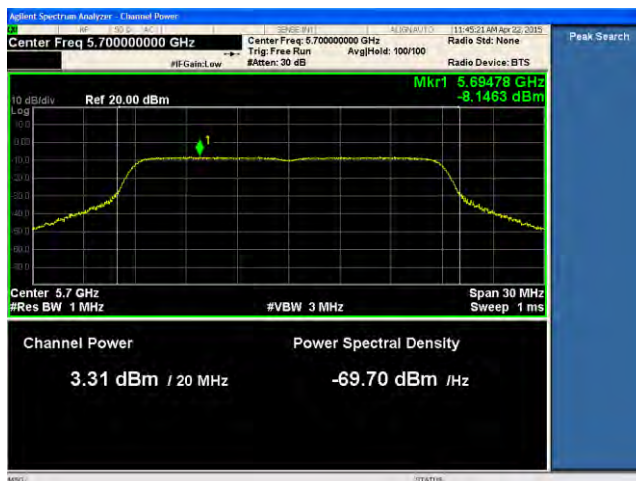
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21dB ANT-PSD-802.11n-HT20-5580M-chain1



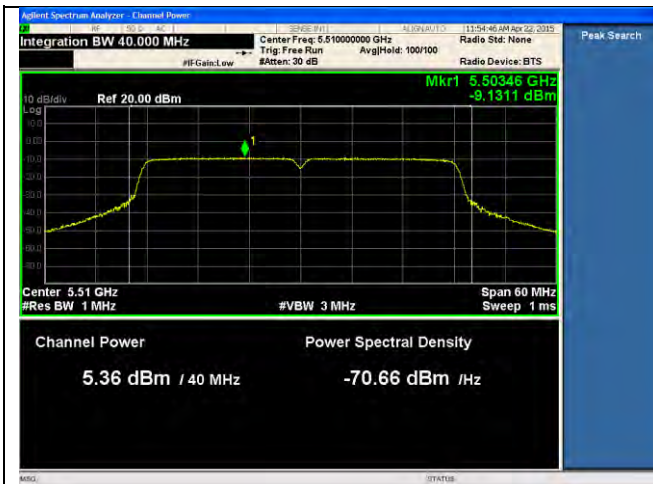
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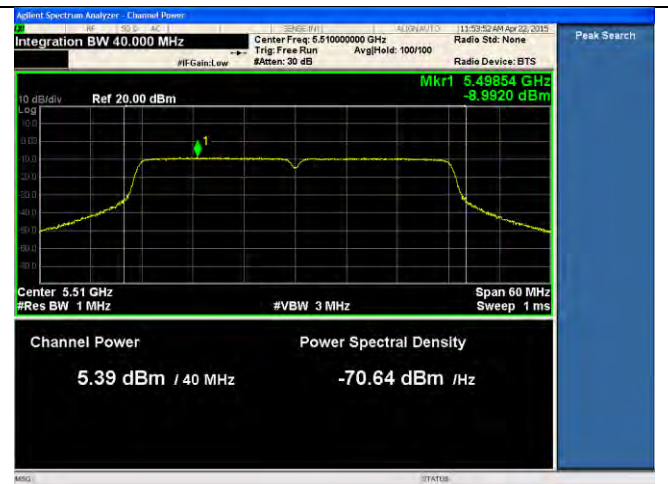
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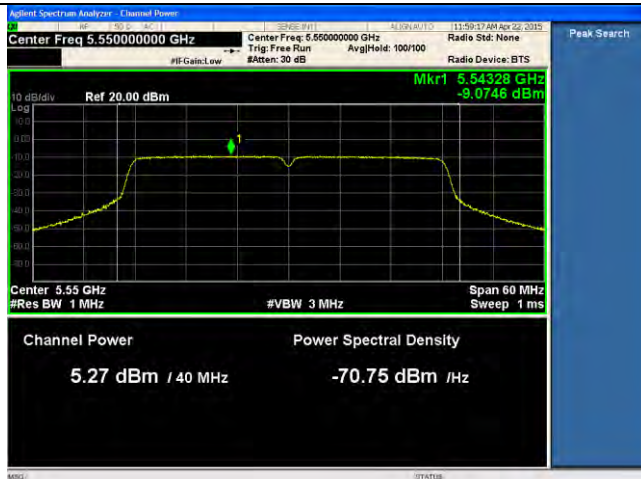
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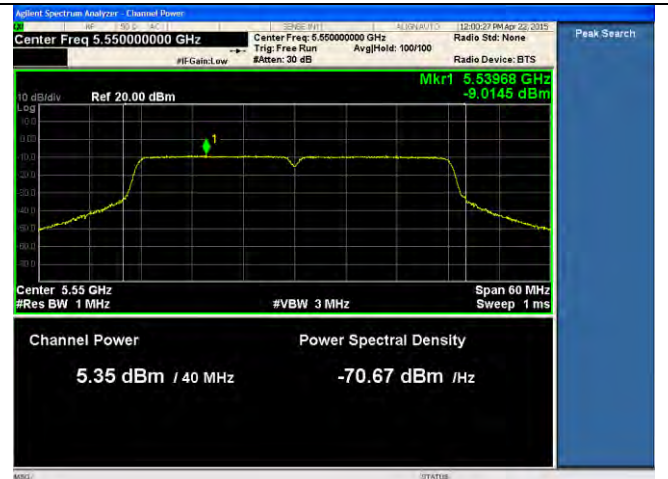
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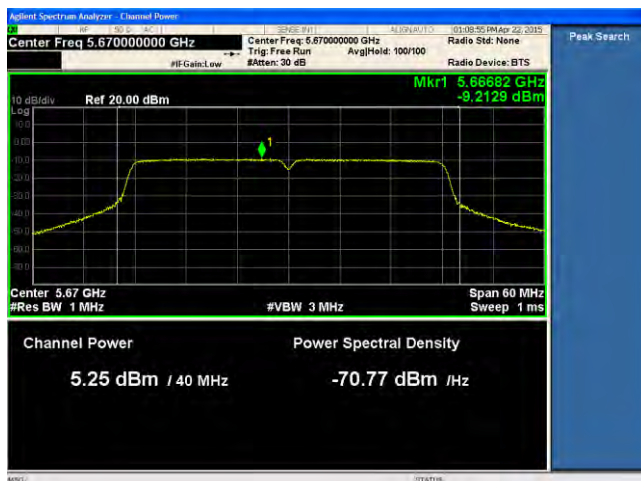
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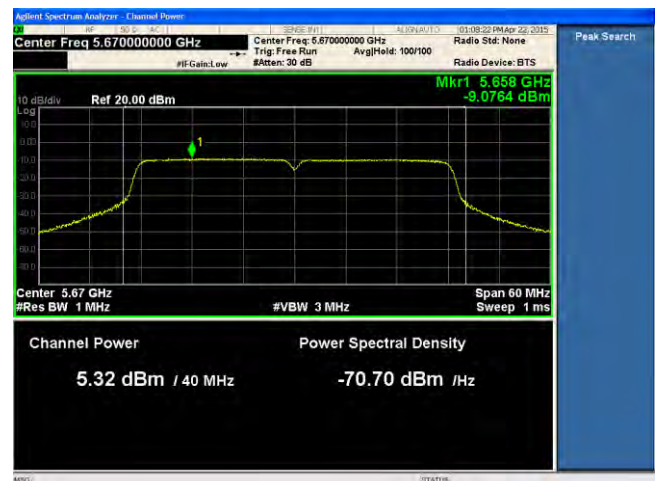
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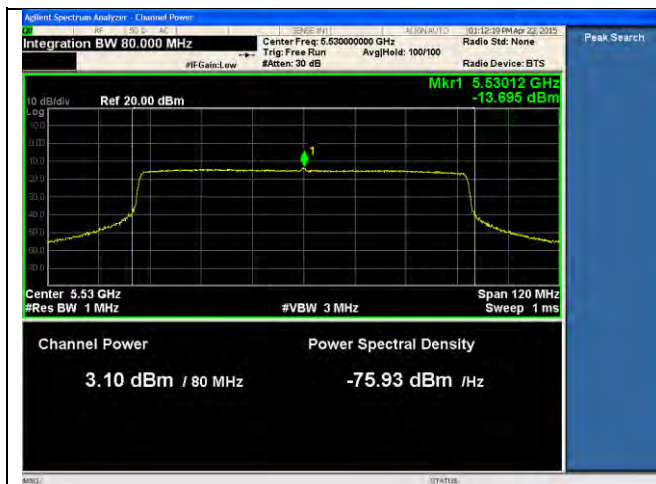
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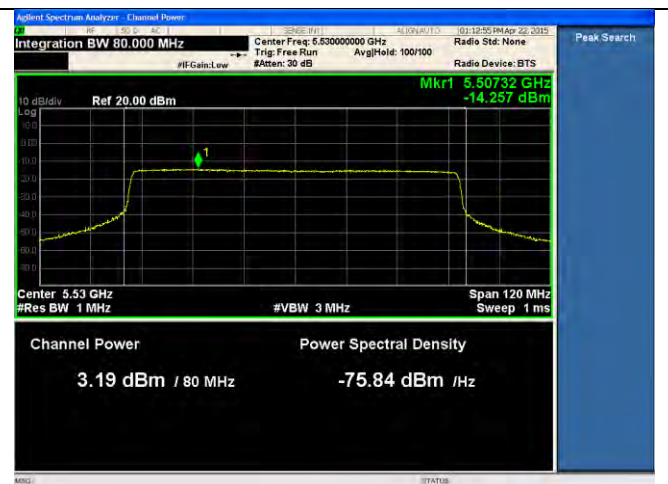
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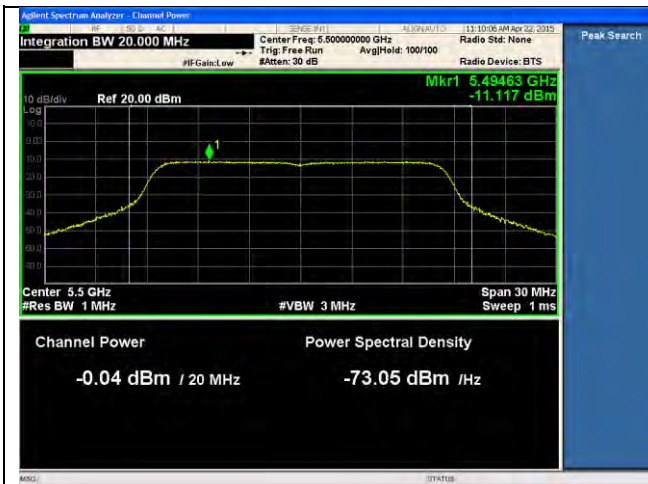
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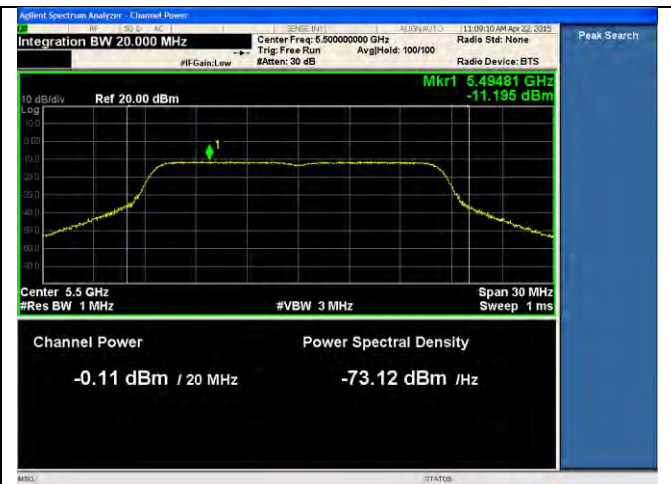
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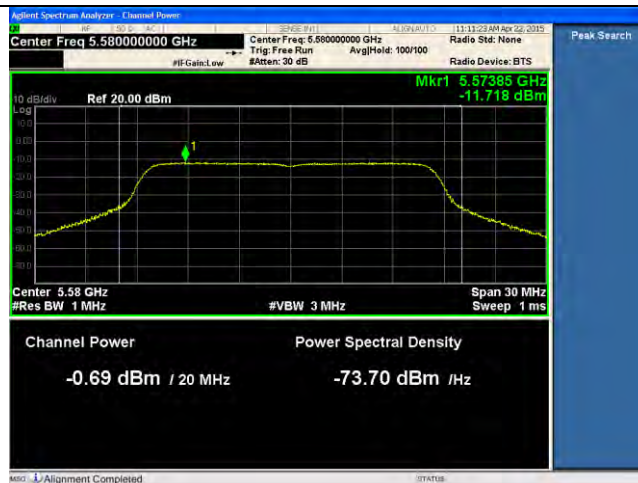
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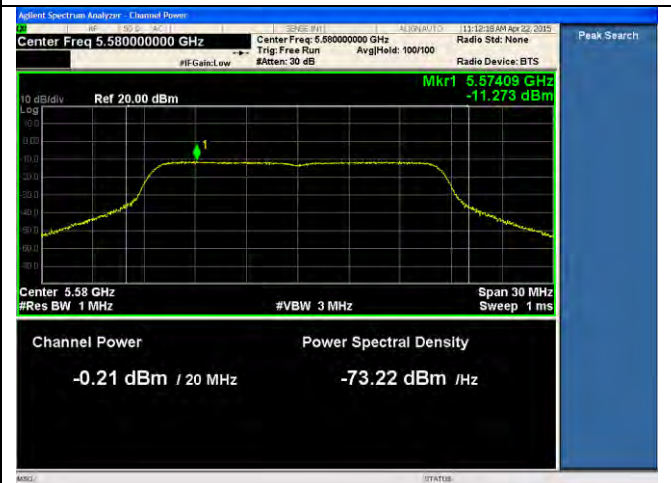
24dBi ANT-PSD-802.11a-5500M-chain1



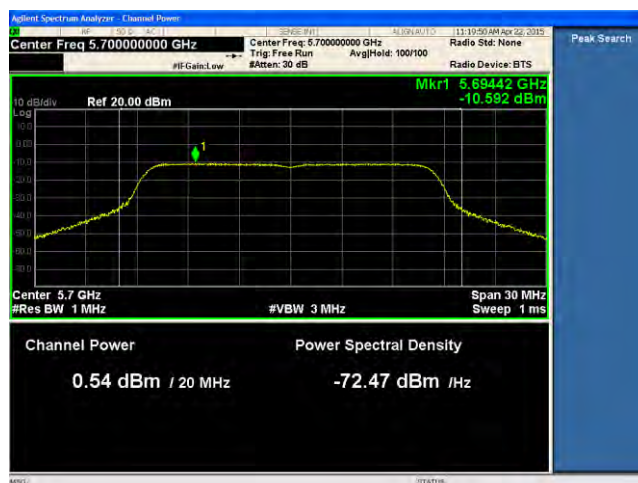
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24dBi ANT-PSD-802.11a-5580M-chain1



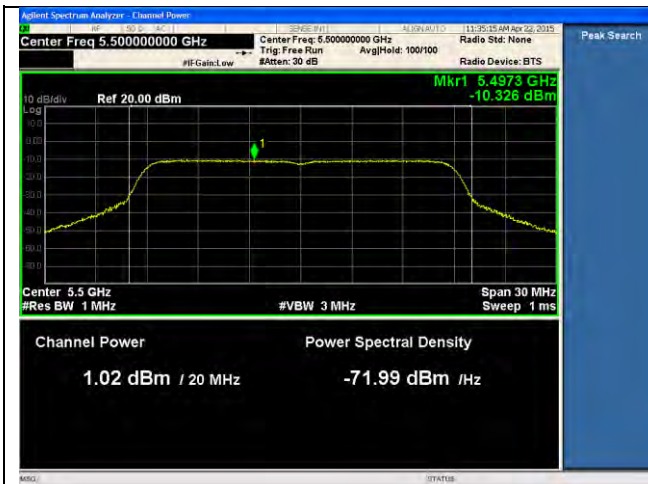
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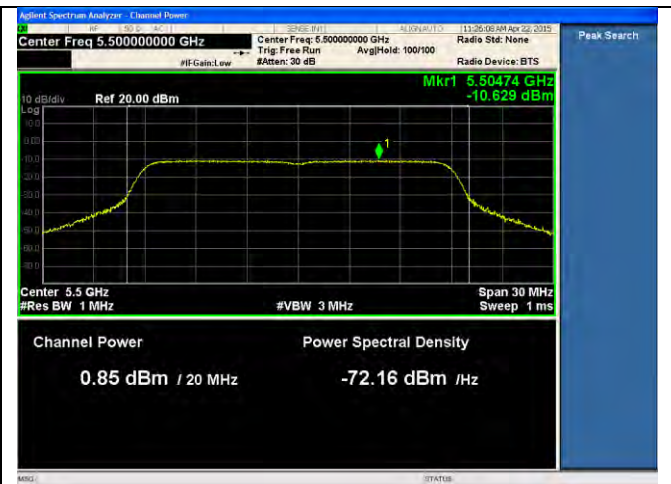
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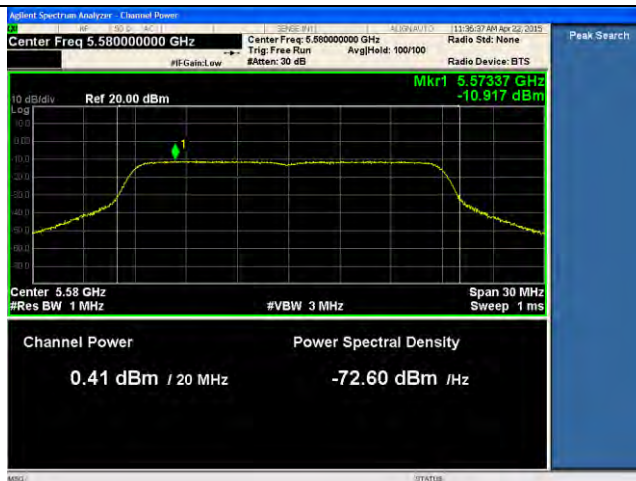
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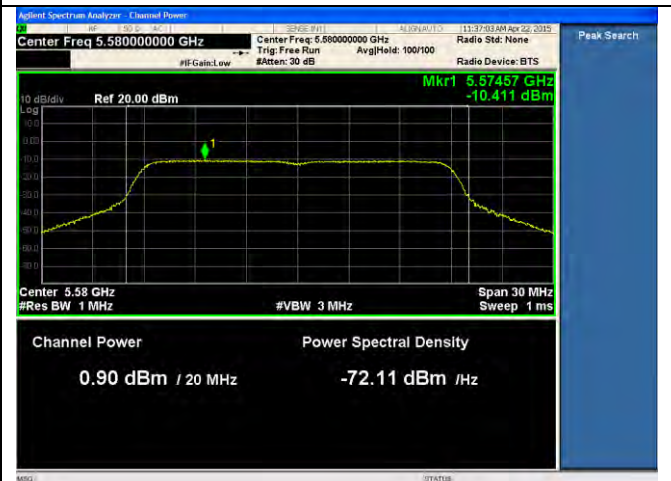
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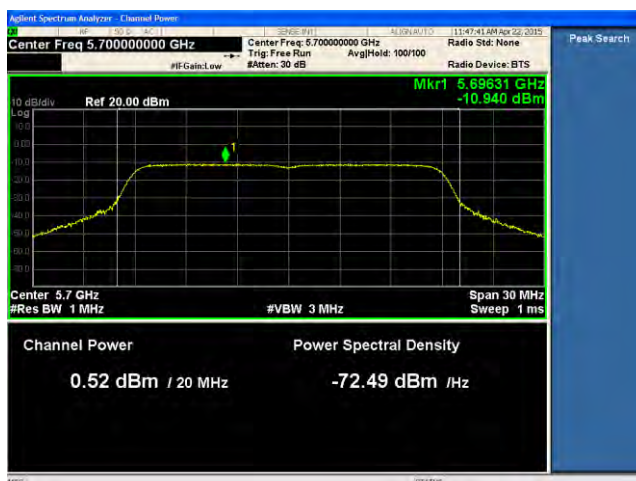
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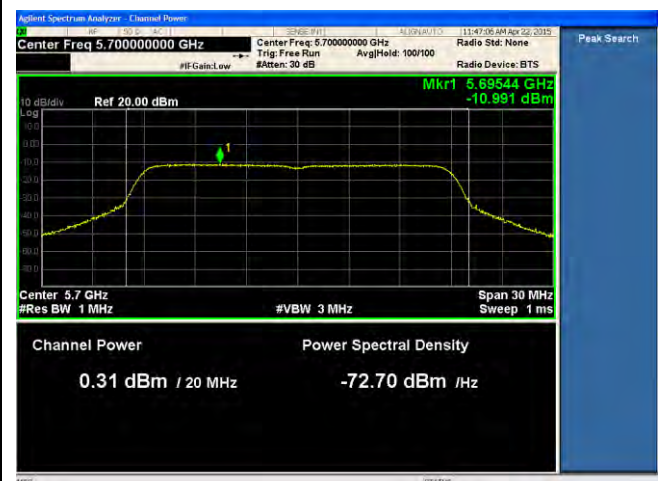
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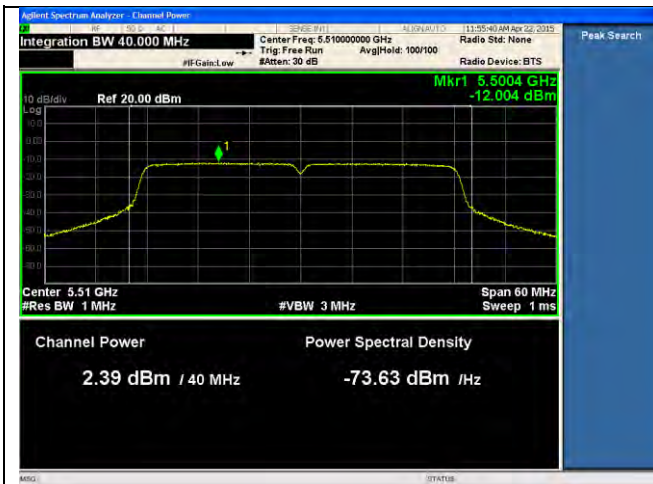
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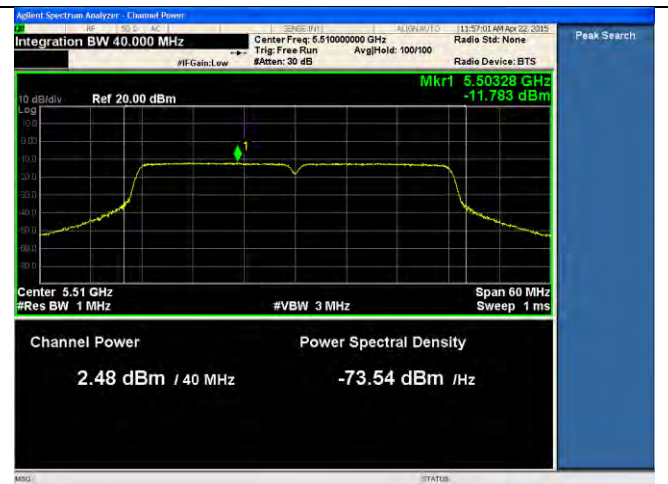
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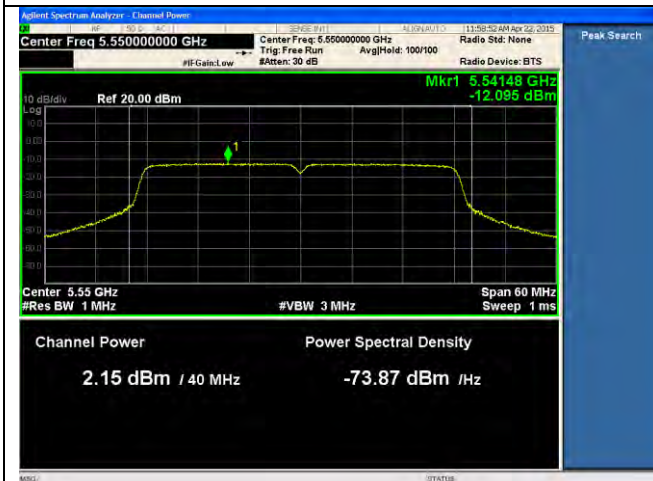
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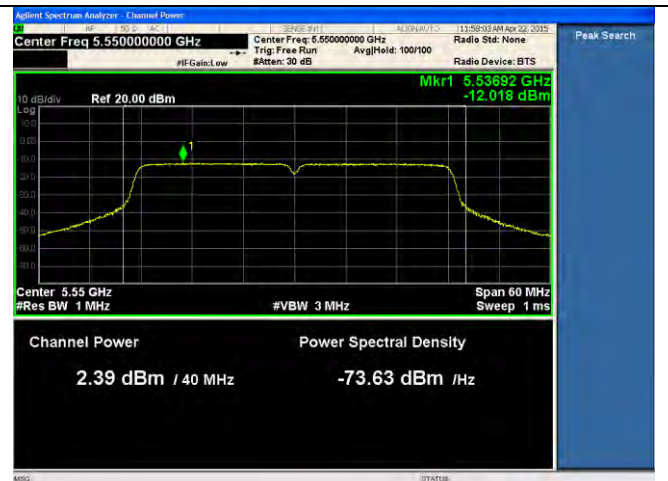
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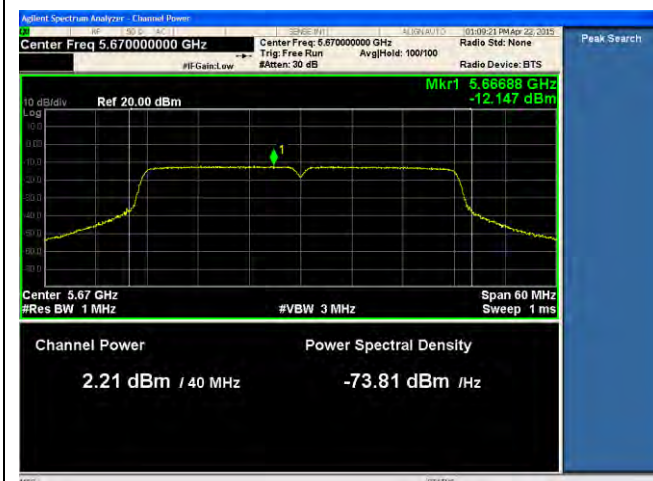
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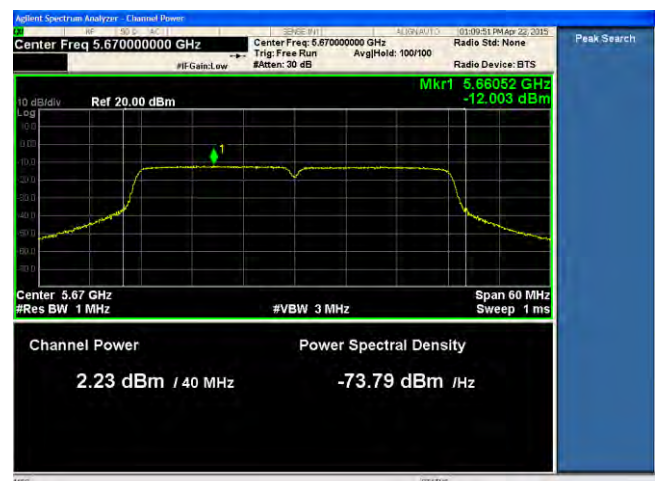
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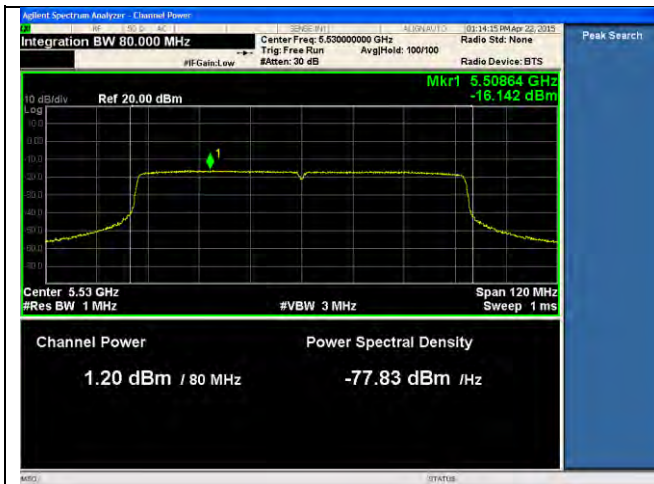
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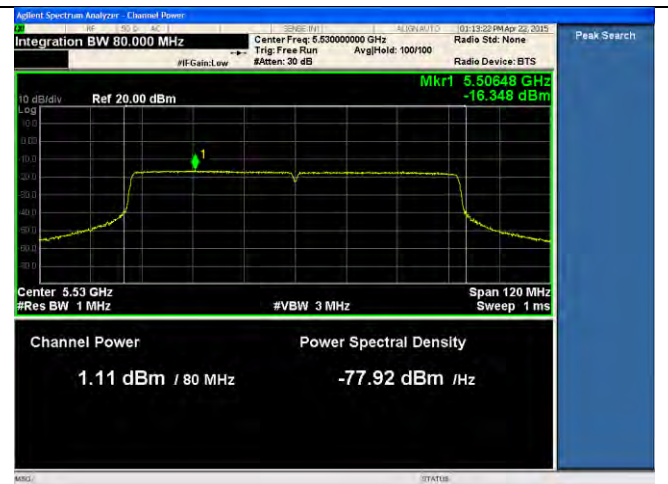
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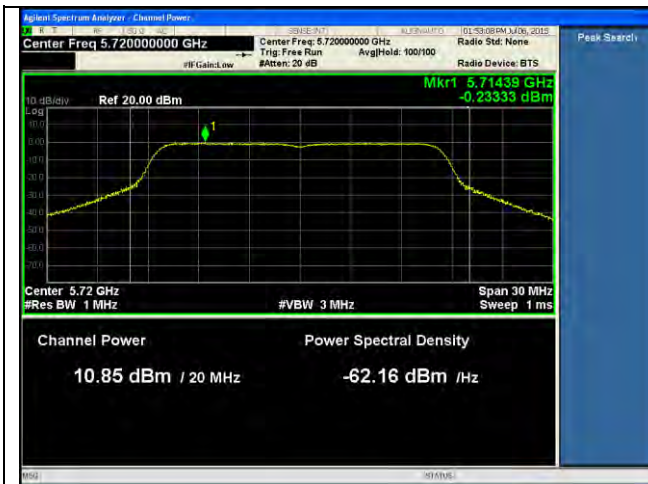
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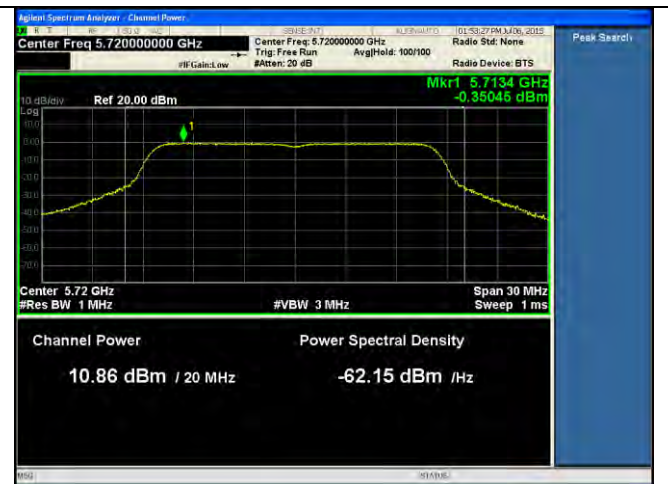
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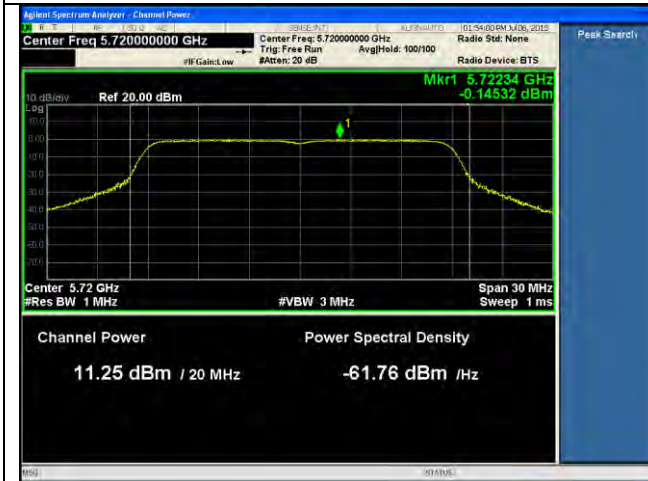
24dBi ANT-PSD-802.11ac -5530M-chain2



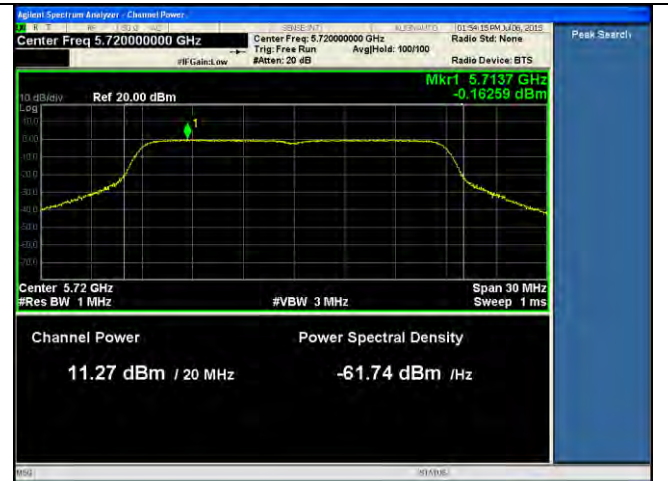
14dBi ANT-PSD-802.11a-CROSS BAND-5720M-chain1



14dBi ANT-PSD-802.11a-CROSS BAND-5720M-chain2



14dBi ANT-PSD-802.11n-HT20-CROSS BAND-5720M-chain1



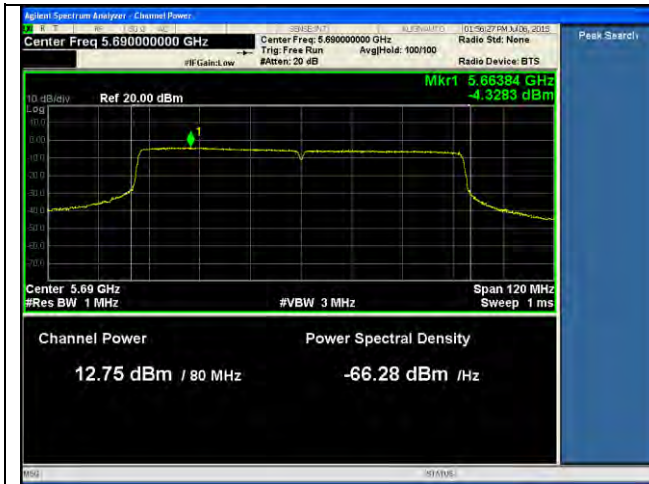
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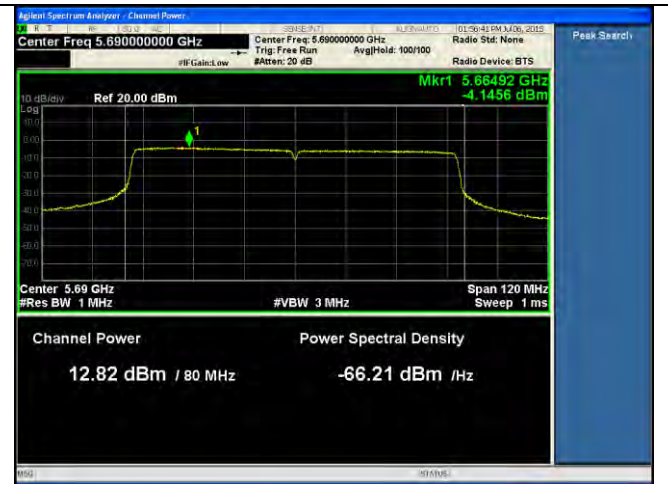
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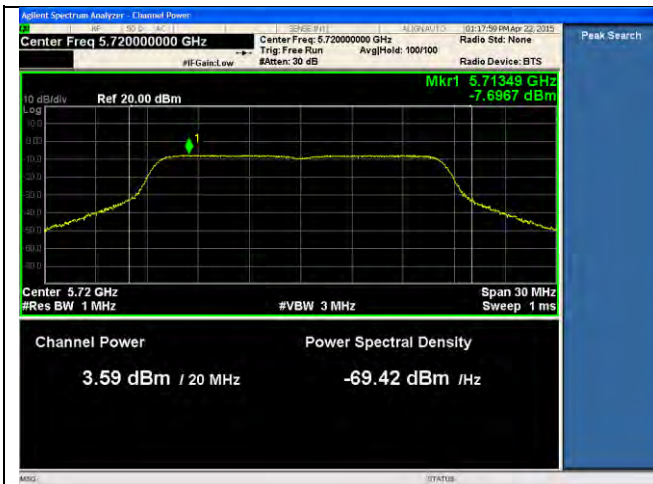
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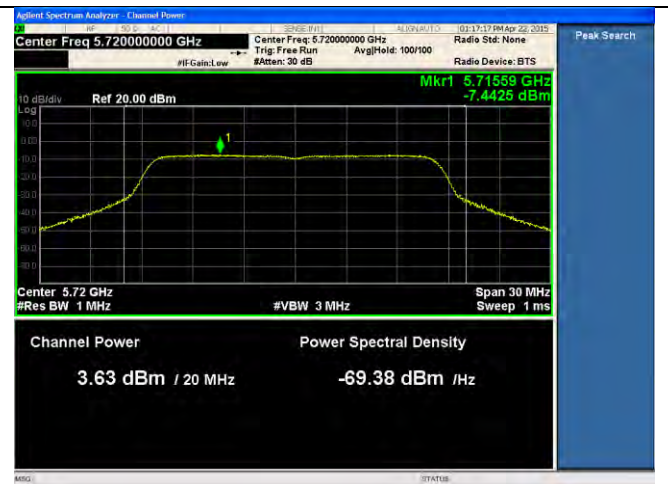
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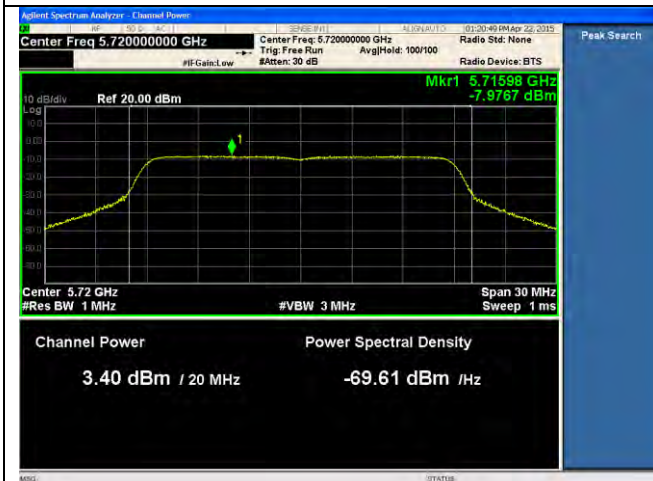
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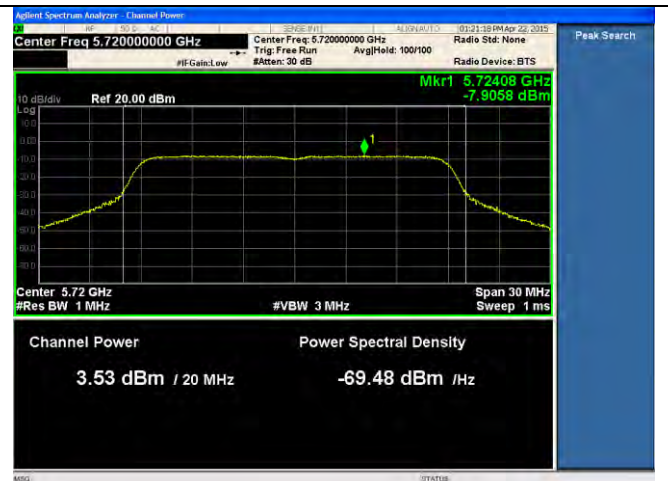
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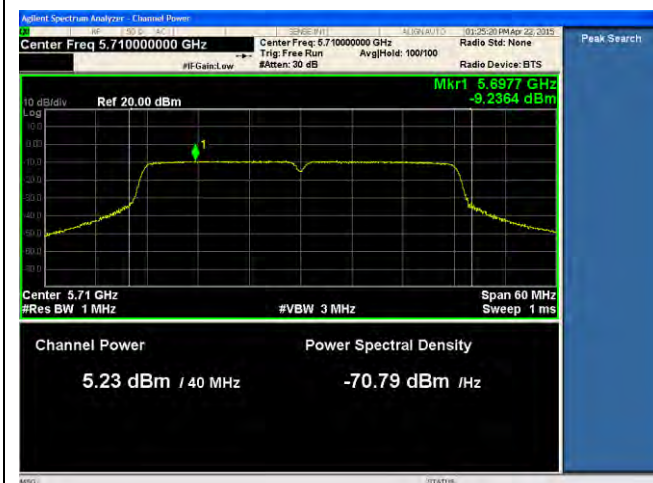
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21dBi ANT-PSD-802.11n-HT20-CROSS BAND-5720M-chain1



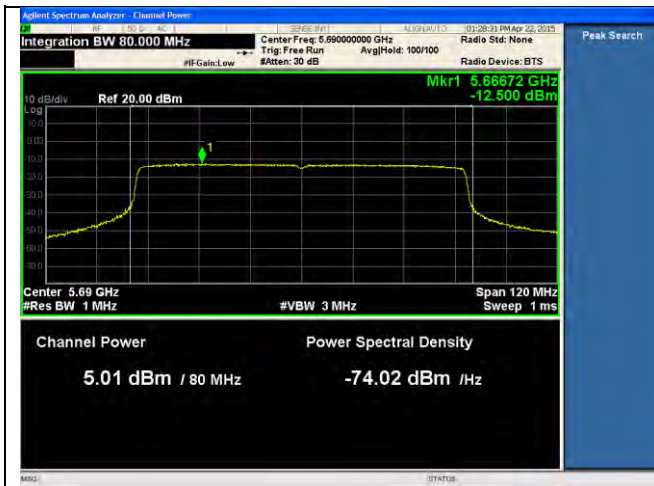
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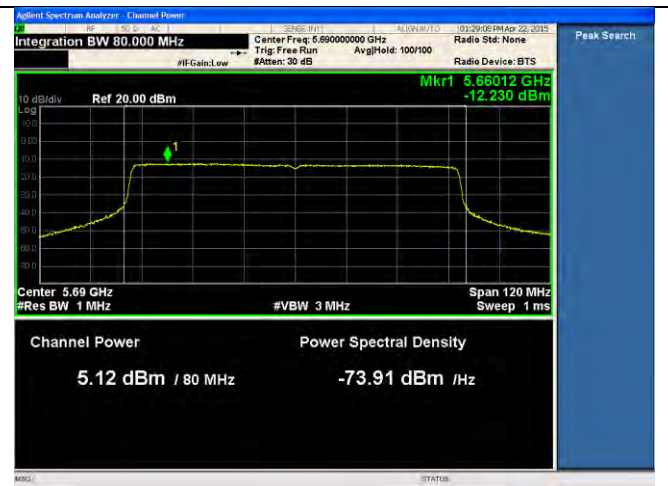
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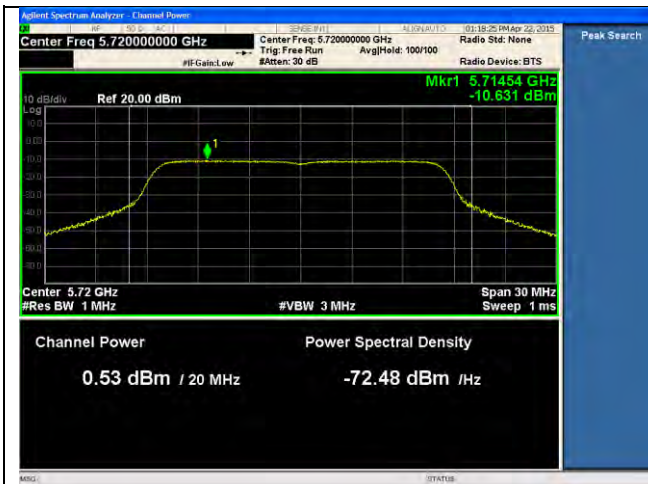
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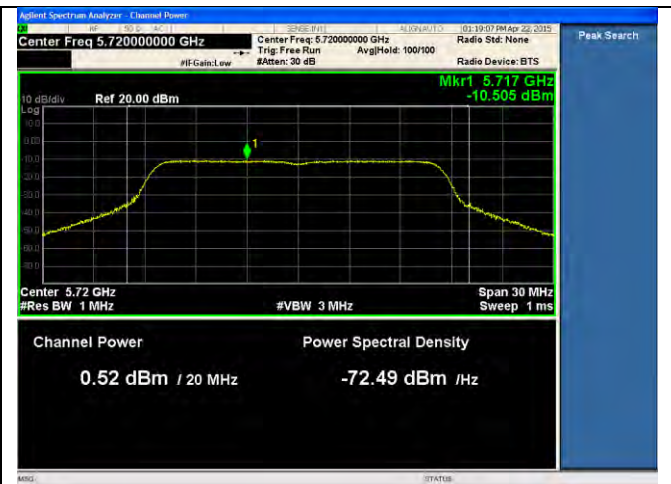
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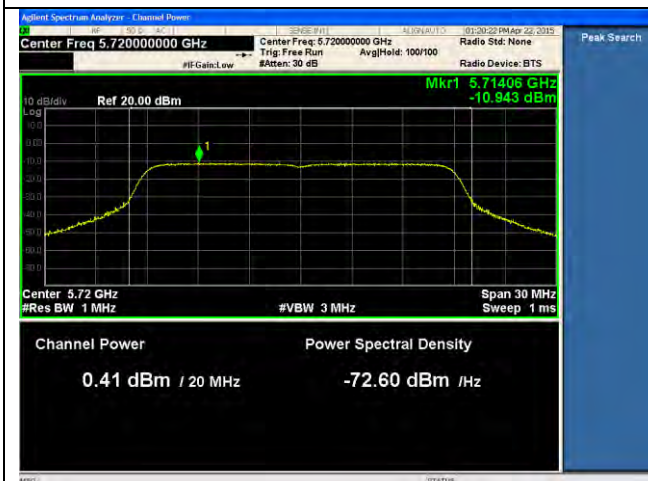
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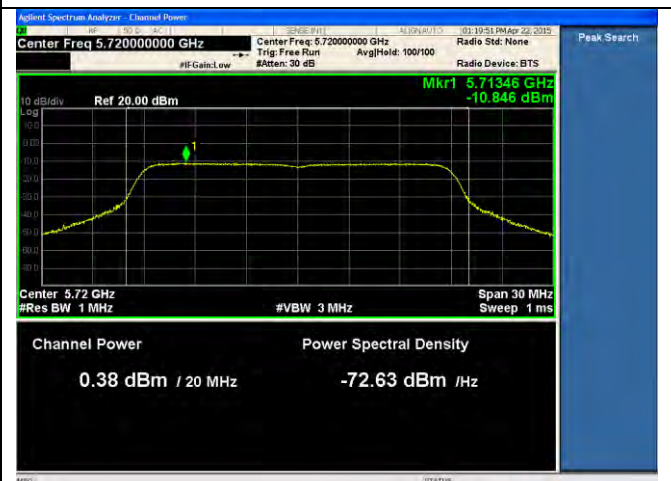
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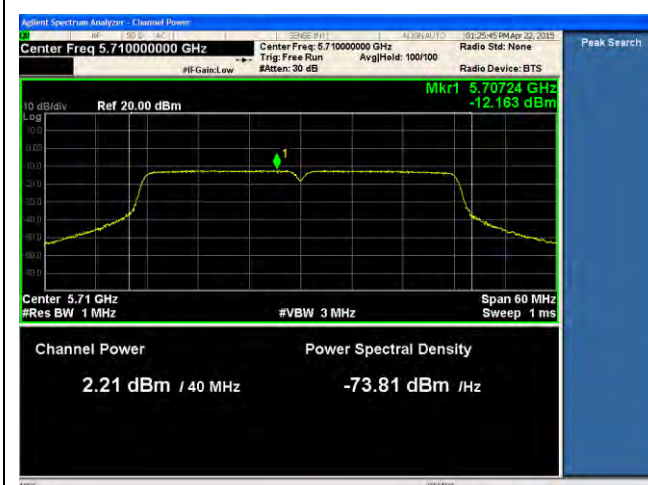
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24dBi ANT-PSD-802.11n-HT20-CROSS BAND-5720M-chain1



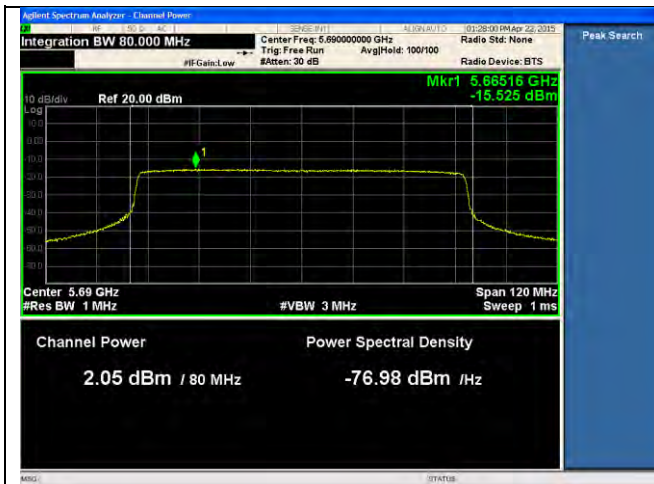
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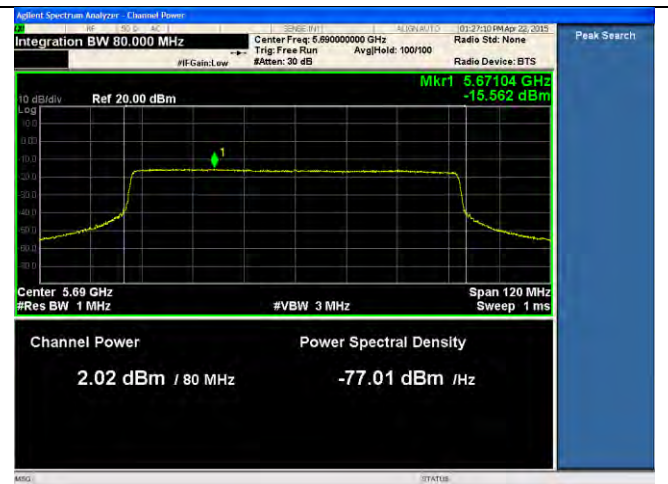
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24dBi ANT-PSD-802.11n-HT40-CROSS BAND-5710M-chain2



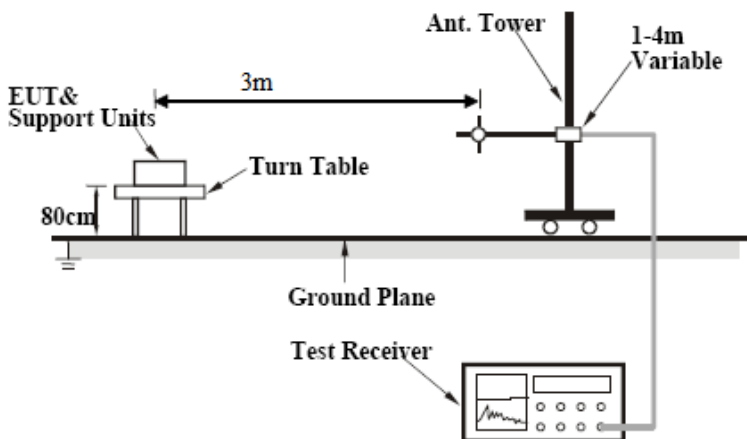
24dBi ANT-PSD-802.11ac-CROSS BAND-5690M-chain1



24dBi ANT-PSD-802.11ac-CROSS BAND-5690M-chain2

10.5 Radiated Spurious Emissions below 1GHz

Requirement(s):

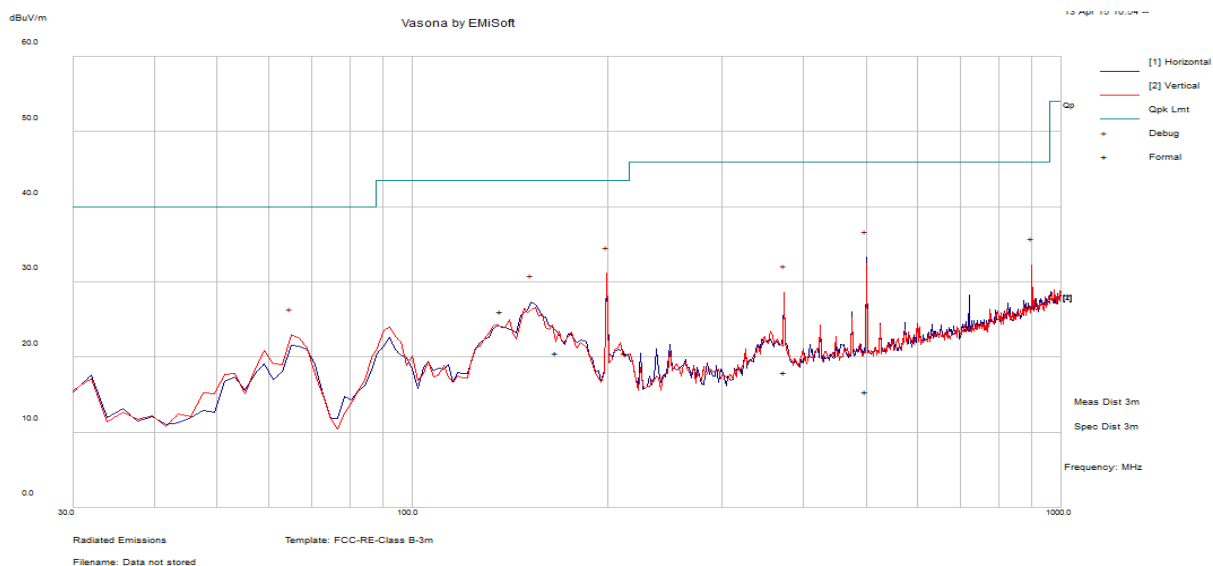
Spec	Requirement	Applicable										
47CFR§ 15.407(b) 15.209 (a)	Except higher limit as specified elsewhere in other section, the emissions from the low-power radio-frequency devices shall not exceed the field strength levels specified in the following table and the level of any unwanted emissions shall not exceed the level of the fundamental emission. The tighter limit applies at the band edges <table><thead><tr><th>Frequency range (MHz)</th><th>Field Strength (uV/m)</th></tr></thead><tbody><tr><td>30 – 88</td><td>100</td></tr><tr><td>88 – 216</td><td>150</td></tr><tr><td>216 960</td><td>200</td></tr><tr><td>Above 960</td><td>500</td></tr></tbody></table>	Frequency range (MHz)	Field Strength (uV/m)	30 – 88	100	88 – 216	150	216 960	200	Above 960	500	☒
Frequency range (MHz)	Field Strength (uV/m)											
30 – 88	100											
88 – 216	150											
216 960	200											
Above 960	500											
Test Setup												
Procedure	1. The EUT was switched on and allowed to warm up to its normal operating condition. 2. The test was carried out at the selected frequency points obtained from the EUT characterisation. Maximization of the emissions, was carried out by rotating the EUT, changing the antenna polarization, and adjusting the antenna height in the following manner: a. Vertical or horizontal polarisation (whichever gave the higher emission level over a full rotation of the EUT) was chosen. b. The EUT was then rotated to the direction that gave the maximum emission. c. Finally, the antenna height was adjusted to the height that gave the maximum emission. 3. A Quasi-peak measurement was then made for that frequency point. 4. Steps 2 and 3 were repeated for the next frequency point, until all selected frequency points were measured.											
Remark	The EUT was scanned for 14 dBi, 21 dBi and 24 dBi antennas. The 21 dBi and 24 dBi antenna are same type of external antennas. The spurious emission data for 13 dBi and 24 dBi antennas are shown as the worst case.											
Result	☒ Pass ☐ Fail											

Test Data ☒ Yes (See below) ☐ N/A

Test Plot ☒ Yes (See below) ☐ N/A

Radiated Emission Test Results (Below 1GHz)

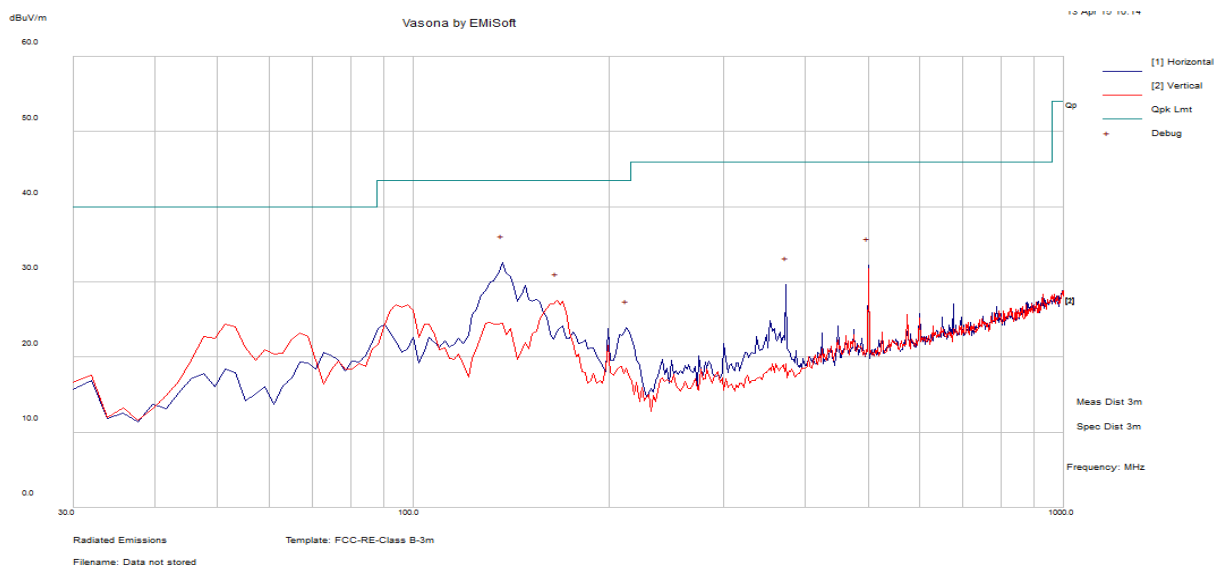
Test specification	below 1GHz			
Environmental Conditions:	Temp (°C):	26.1	Result	Pass
	Humidity (%)	47.5		
	Atmospheric (mbar):	1020		
Mains Power:	120VAC, 60Hz			
Tested by:	Ricky Wang			
Test Date:	04/13/2015			
Remarks:	14dBi internal Antenna			



Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Polarization	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass/Fail
199.3682	37.6	2.52	-25.81	14.31	Quasi Max	V	154	144	43.5	-29.19	Pass
500.3692	32.09	4.15	-20.9	15.34	Quasi Max	H	263	301	46	-30.66	Pass
901.0656	31.85	6.61	-16.7	21.76	Quasi Max	V	283	54	46	-24.24	Pass
152.228	46.84	2.24	-26.1	22.97	Quasi Max	H	176	138	43.5	-20.53	Pass
64.98247	44.07	1.38	-30.03	15.42	Quasi Max	V	268	232	40	-24.58	Pass
374.232	37.68	3.48	-23.47	17.69	Quasi Max	V	101	278	46	-28.31	Pass

Note: Both horizontal and vertical polarities were investigated. The results above show only the worst case.

Test specification	below 1GHz			
Environmental Conditions:	Temp (°C):	26.1	Result	Pass
	Humidity (%)	47.5		
	Atmospheric (mbar):	1020		
Mains Power:	120VAC, 60Hz			
Tested by:	Ricky Wang			
Test Date:	04/13/2015			
Remarks:	24dBi External Antenna			



Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Polarization	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass/Fail
136.7049	48.98	2.12	-24.99	26.11	Quasi Max	H	209	56	43.5	-17.39	Pass
500.4193	32.16	4.15	-20.9	15.41	Quasi Max	H	193	214	46	-30.59	Pass
166.1999	45.01	2.33	-26.81	20.53	Quasi Max	V	119	23	43.5	-22.97	Pass
373.8923	38.02	3.47	-23.47	18.02	Quasi Max	H	101	271	46	-27.98	Pass
212.9113	45.89	2.59	-27.95	20.53	Quasi Max	H	125	113	43.5	-22.97	Pass

Note: Both horizontal and vertical polarities were investigated. The results above show only the worst case.

10.6 Radiated Spurious Emissions above 1GHz

Requirement(s):

Spec	Item	Requirement	Applicable
47CFR§ 15.407(b)(2), 15.407(b)(6)	(1)	For transmitters operating in the 5.15-5.25 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27 dBm/MHz.	☐
	(2)	For transmitters operating in the 5.25-5.35 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27 dBm/MHz. Devices operating in the 5.25-5.35 GHz band that generate emissions in the 5.15-5.25 GHz band must meet all applicable technical requirements for operation in the 5.15-5.25 GHz band (including indoor use) or alternatively meet an out-of-band emission EIRP limit of -27 dBm/MHz in the 5.15-5.25 GHz band.	☒
	(3)	For transmitters operating in the 5.47-5.725 GHz band: all emissions outside of the 5.47-5.725 GHz band shall not exceed an EIRP of -27 dBm/MHz.	☒
	(4)	For transmitters operating in the 5.725-5.825 GHz band: all emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an EIRP of -17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an EIRP of -27 dBm/MHz.	☐
	(5)	Restricted band, emission must also comply with the radiated emission limits specified in 15.209	☒

Test Setup	
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Procedure	- The EUT was switched on and allowed to warm up to its normal operating condition. - The test was carried out at the selected frequency points obtained from the EUT characterisation. Maximization of the emissions, was carried out by rotating the EUT, changing the antenna polarization, and adjusting the antenna height in the following manner: - Vertical or horizontal polarisation (whichever gave the higher emission level over a full rotation of the EUT) was chosen. - The EUT was then rotated to the direction that gave the maximum emission. - Finally, the antenna height was adjusted to the height that gave the maximum emission. - An average measurement was then made for that frequency point. - Steps 2 and 3 were repeated for the next frequency point, until all selected frequency points were measured.
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Remark	The EUT was scanned for 14 dBi, 21 dBi and 24 dBi antennas. The 21 dBi and 24 dBi antenna are same type of external antennas. The spurious emission data for 13 dBi and 24 dBi antennas are shown as the worst case.
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Result	☒ Pass ☐ Fail
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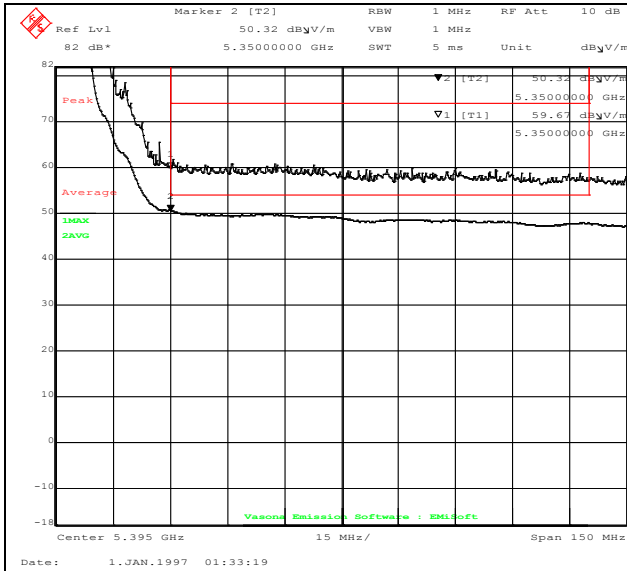
Equipment Setting

TEST	RBW	VBW	SPAN	Detector	SWEEP	Trace	NOTES
Radiated Spurious Emission	1MHz	3MHz	1GHz - 25 GHz	Peak	Auto	Max hold	PK Measurement
Radiated Spurious Emission	1MHz	10Hz	1GHz - 25 GHz	Peak	Auto	Max hold	Ave Measurement

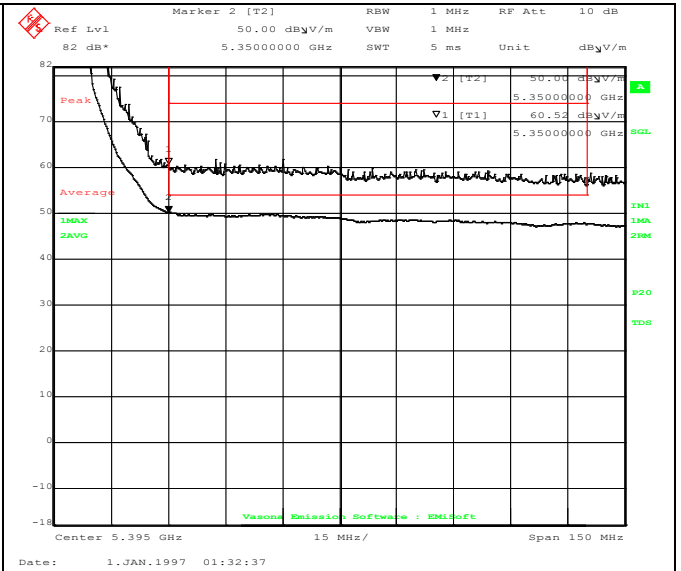
Test Data ☒ Yes (See below) ☐ N/A

Test Plot ☐ Yes (See below) ☒ N/A

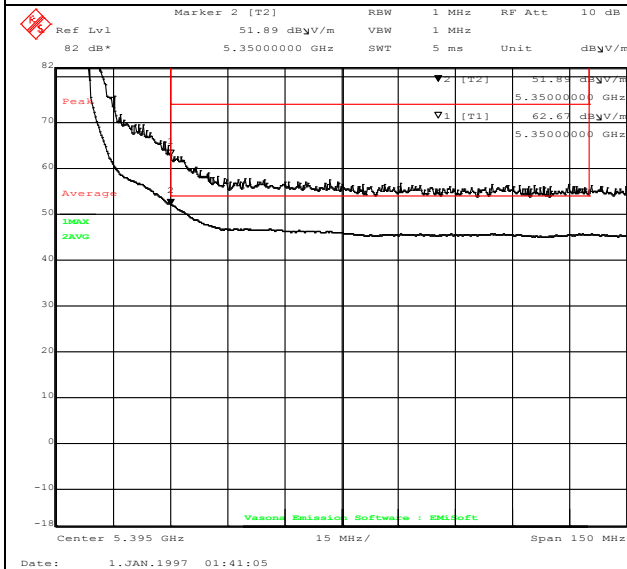
Radiated Restricted band and Band Edge Measurement Plots:



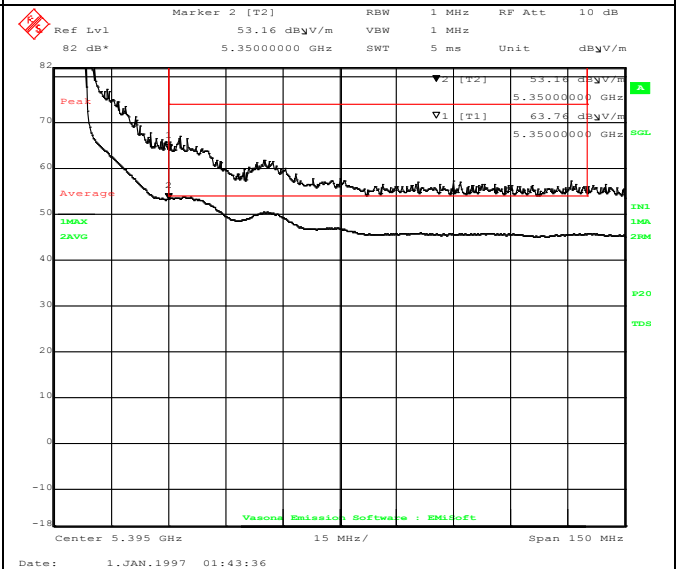
14dBi ANT-802.11a 5320MHz(5350-5460MHz)



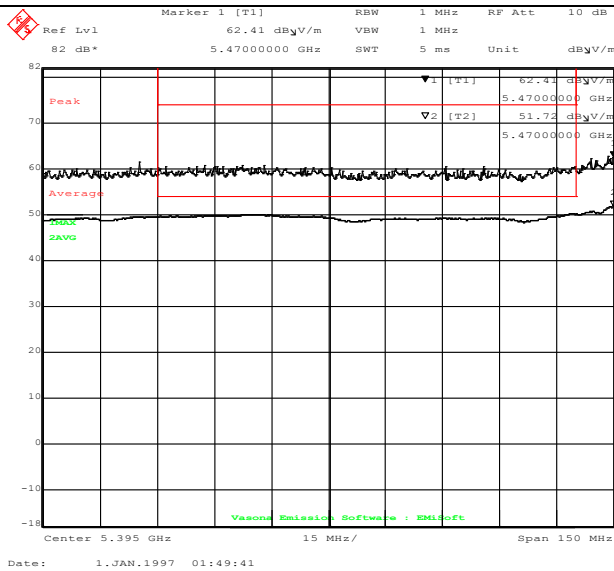
14dBi ANT-802.11n-HT20 5320MHz(5350-5460MHz)



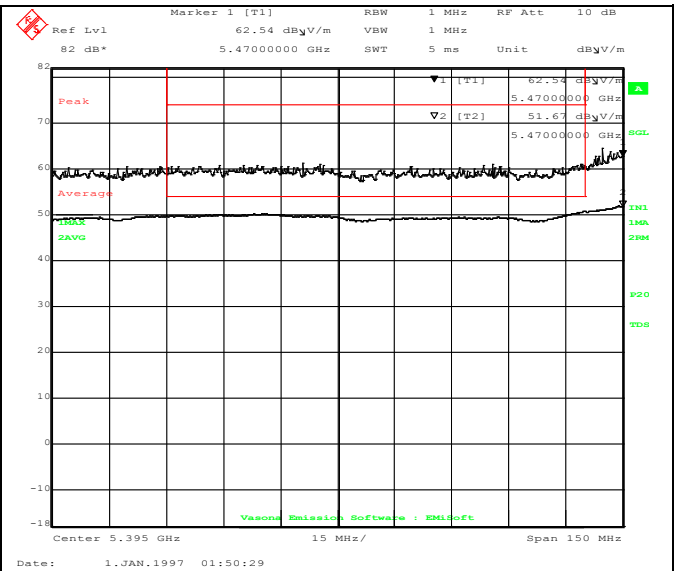
14dBi ANT-802.11n-HT40 5310MHz(5350-5460MHz)



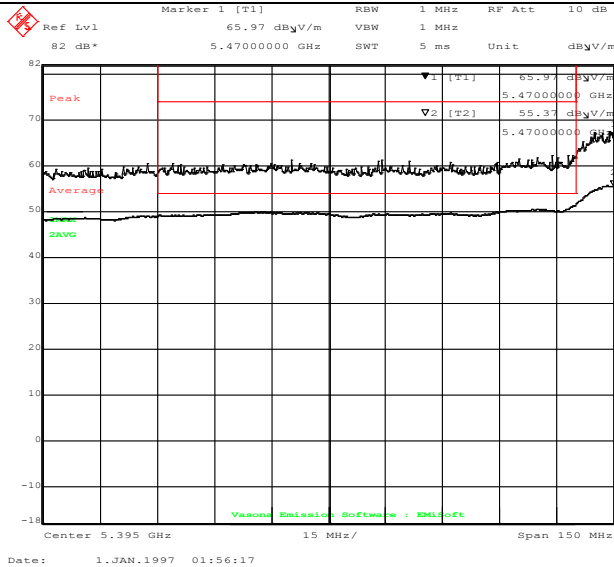
14dBi ANT-802.11ac 5290MHz(5350-5460MHz)



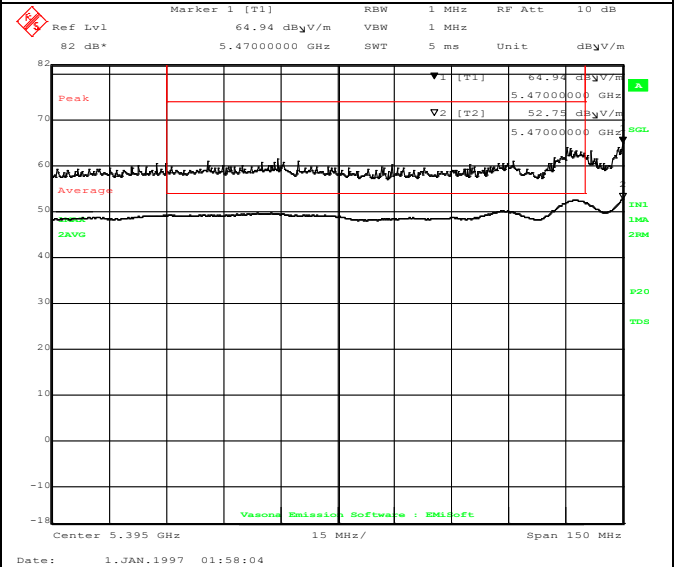
14dBi ANT-802.11a 5500MHz(5350-5470MHz)



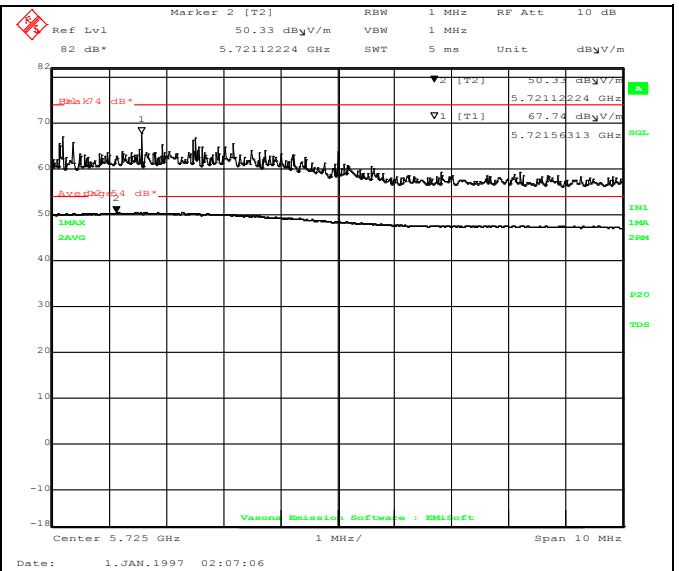
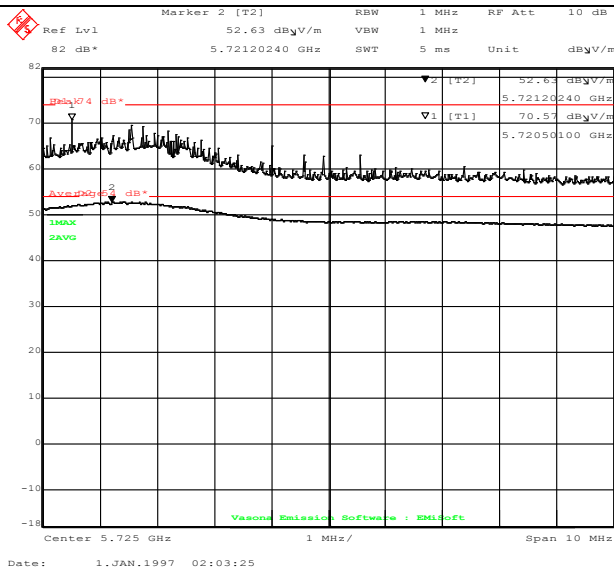
14dBi ANT-802.11n-HT20 5500MHz(5350-5470MHz)



14dBi ANT-802.11n-HT40 5510MHz(5350-5470MHz)

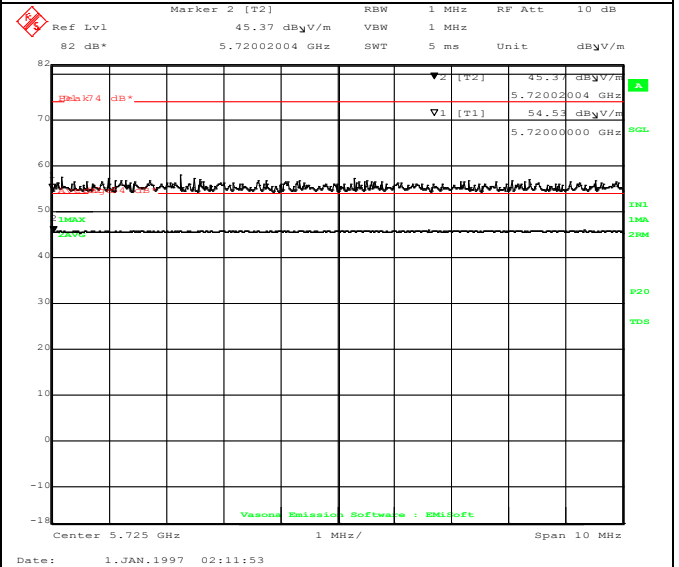
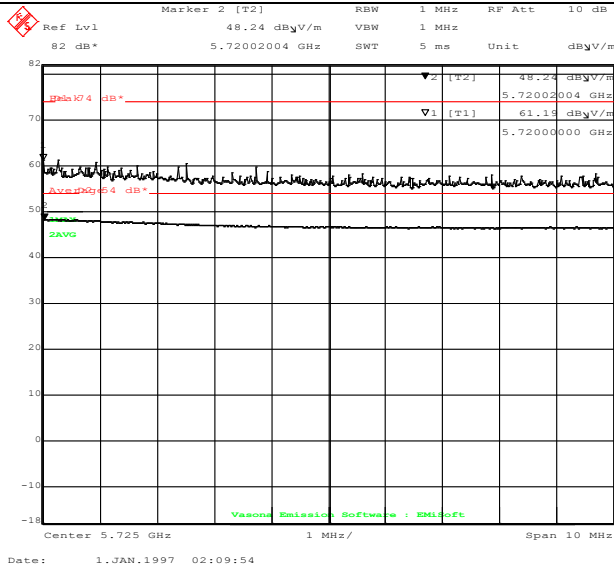


14dBi ANT-802.11ac 5530MHz(5350-5470MHz)



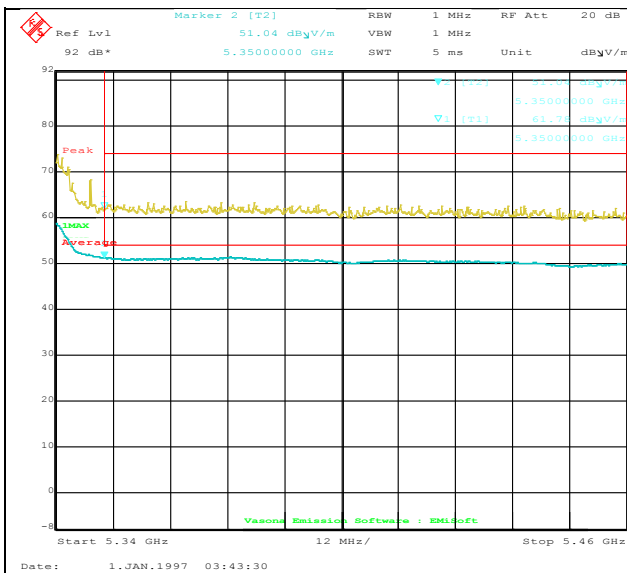
14dB ANT-802.11a 5700MHz Edge 5725MHz

14dB ANT-802.11n-HT20 5700MHz Edge 5725MHz

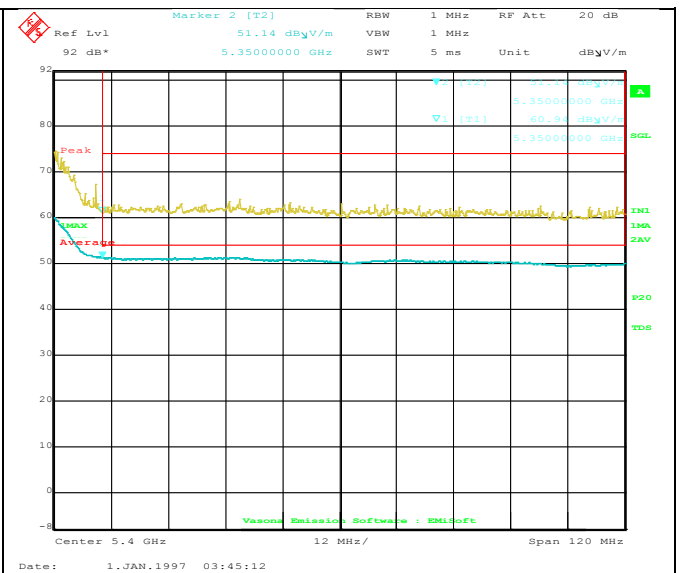


14dB ANT-802.11n-HT40 5670MHz Edge 5725 MHz

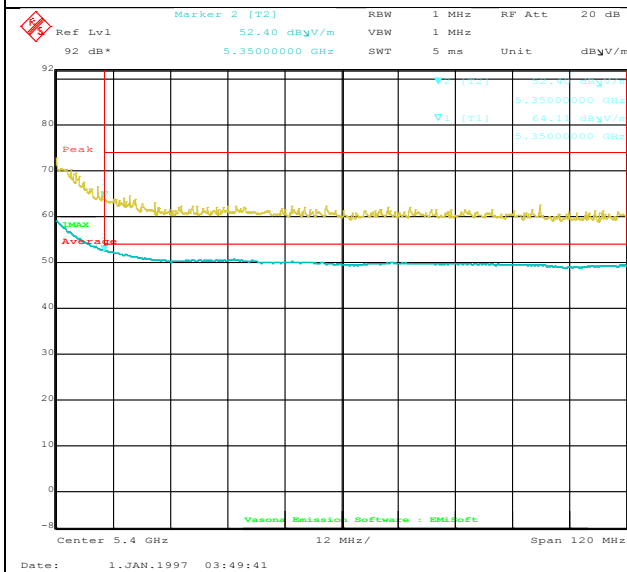
14dB ANT-802.11ac 5530MHz Edge 5725MHz



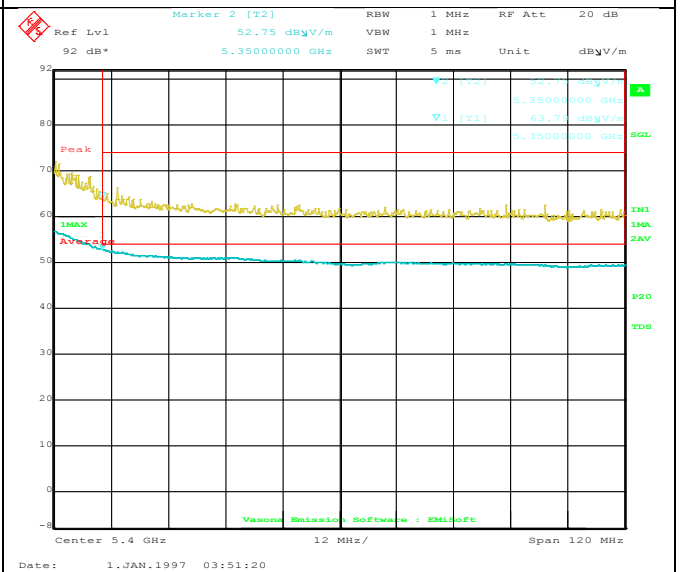
21dBi ANT-802.11a 5320MHz(5350-5460MHz)



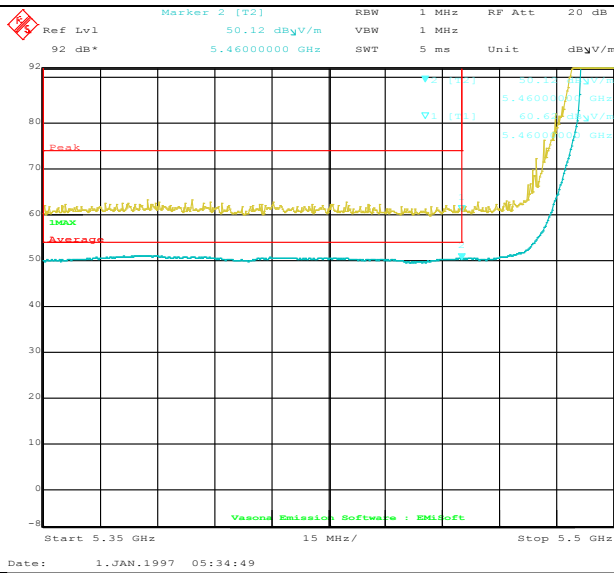
21dBi ANT-802.11n-HT20 5320MHz(5350-5460MHz)



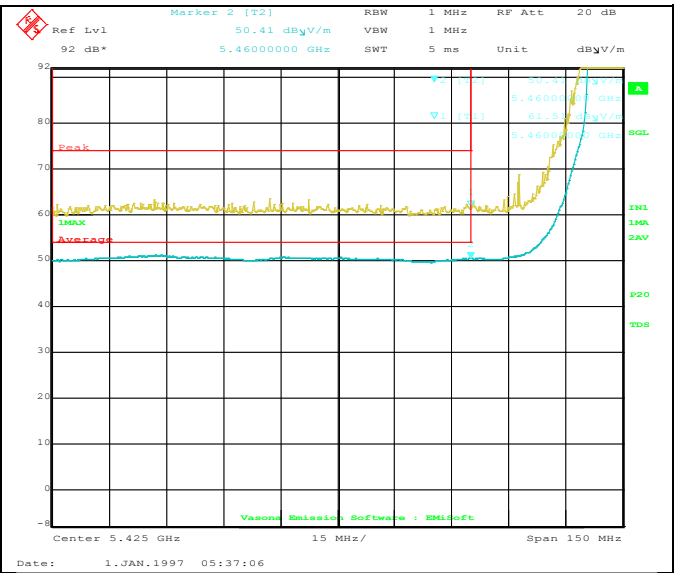
21dBi ANT-802.11n-HT40 5310MHz(5350-5460MHz)



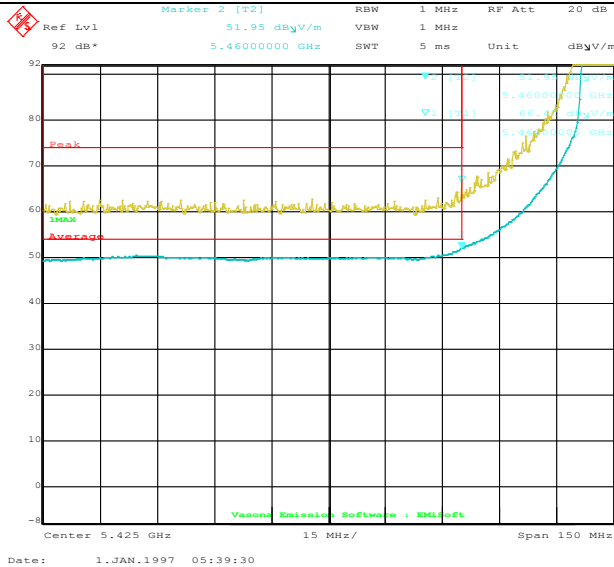
21dBi ANT-802.11ac 5290MHz(5350-5460MHz)



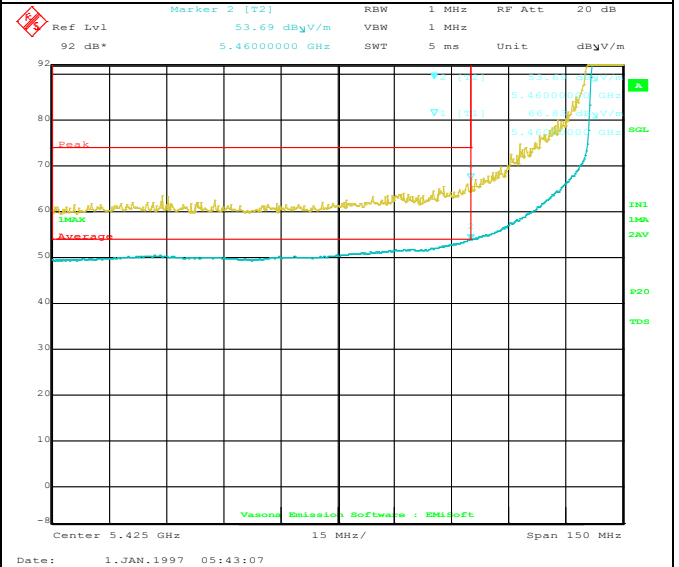
21dBi ANT-802.11a 5500MHz(5350-5460MHz)



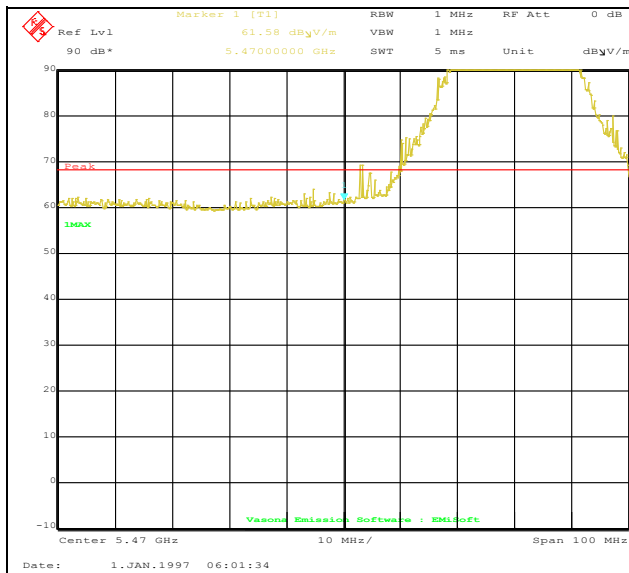
21dBi ANT-802.11n-HT20 5500MHz(5350-5460MHz)



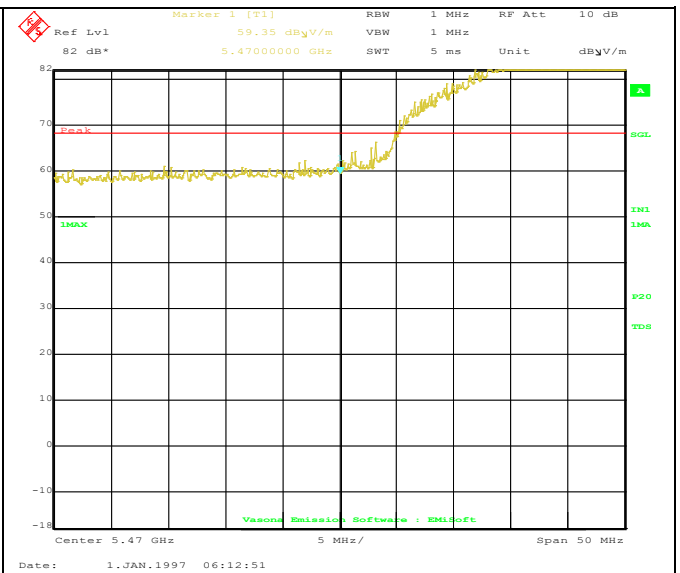
21dBi ANT-802.11n-HT40 5510MHz(5350-5460MHz)



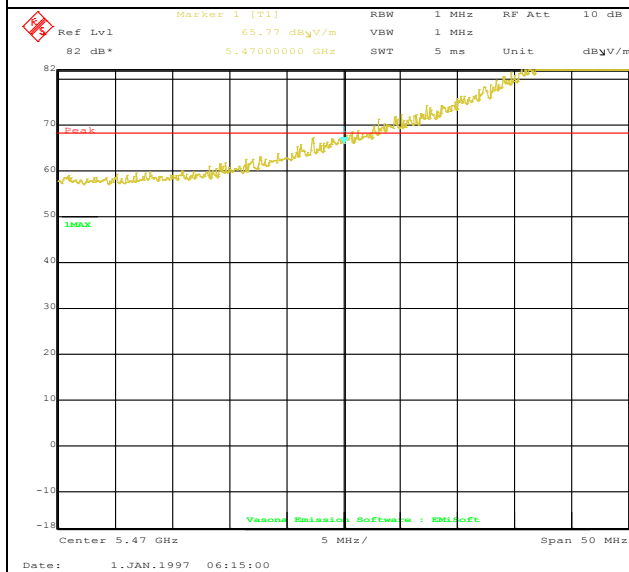
21dBi ANT-802.11ac 5530MHz(5350-5460MHz)



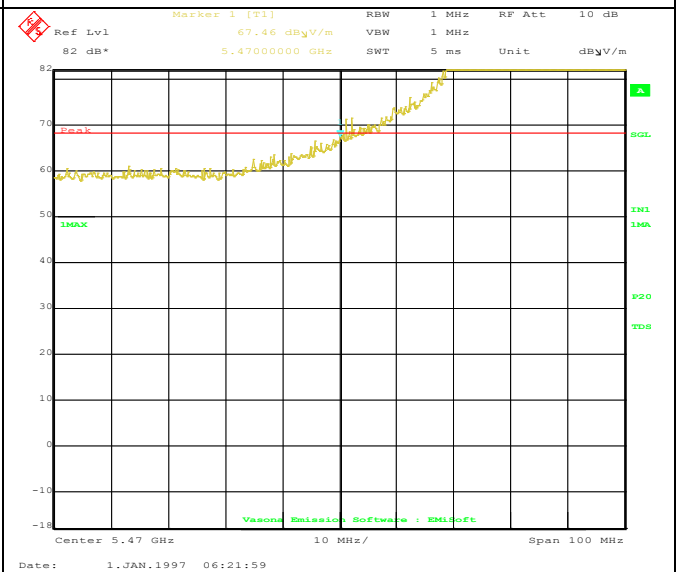
21dBi ANT-802.11a 5500MHz Edge 5470MHz



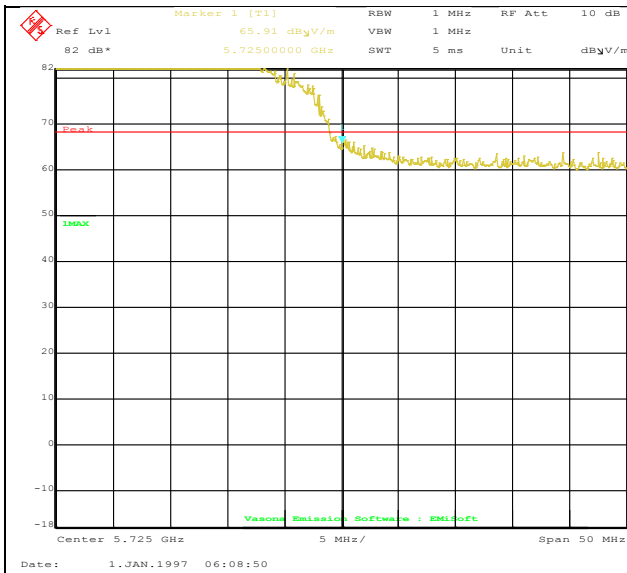
21dBi ANT-802.11n-HT20 5500MHz Edge 5470MHz



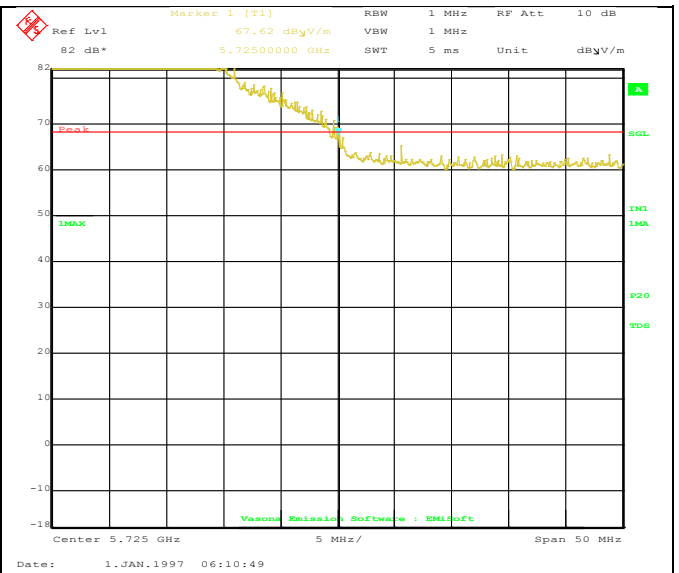
21dBi ANT-802.11n-HT40 5510MHz Edge 5470 MHz



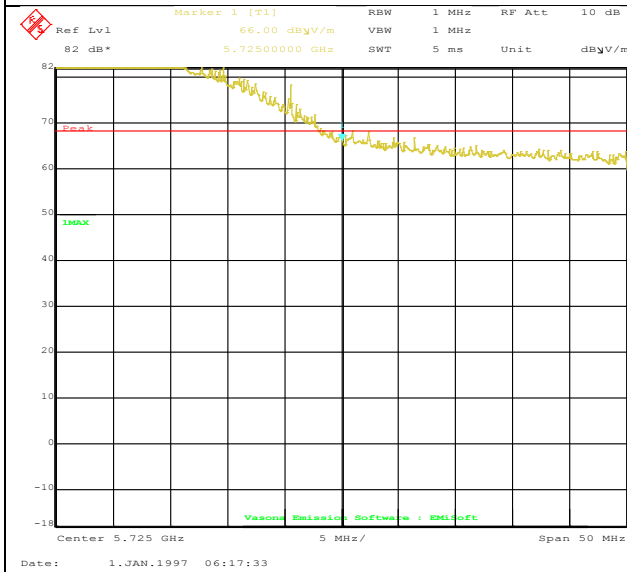
21dBi ANT-802.11ac 5530MHz Edge 5470MHz



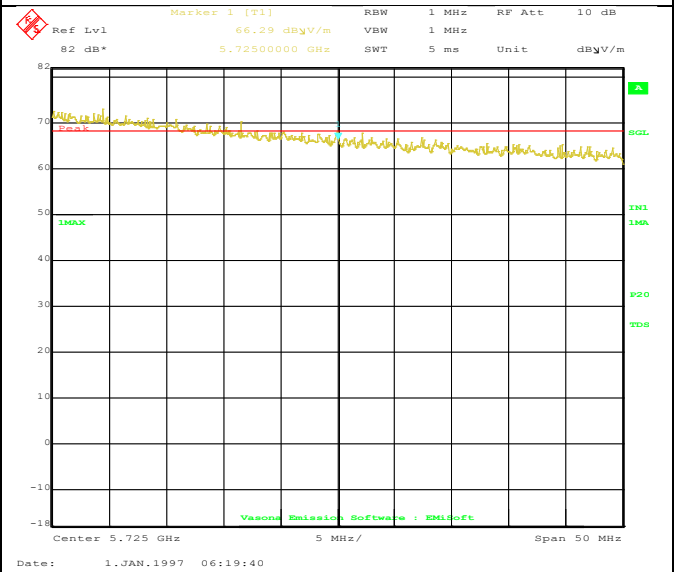
21dBi ANT-802.11a 5700MHz Edge 5725MHz



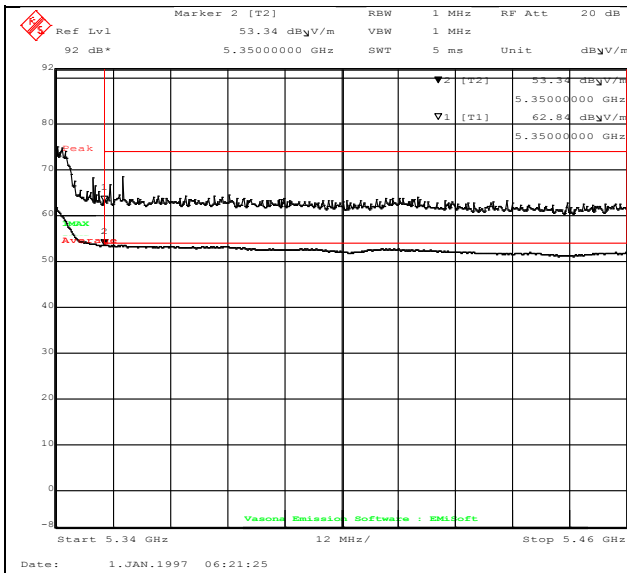
21dBi ANT-802.11n-HT20 5700MHz Edge 5725MHz



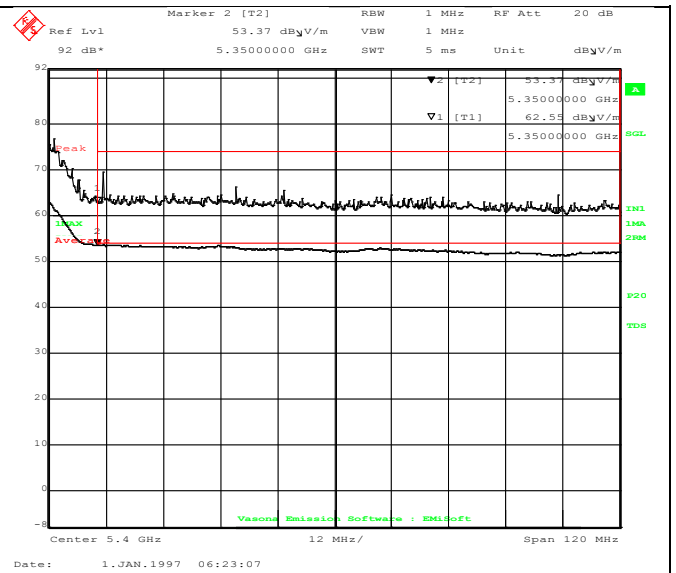
21dBi ANT-802.11n-HT40 5670MHz Edge 5725 MHz



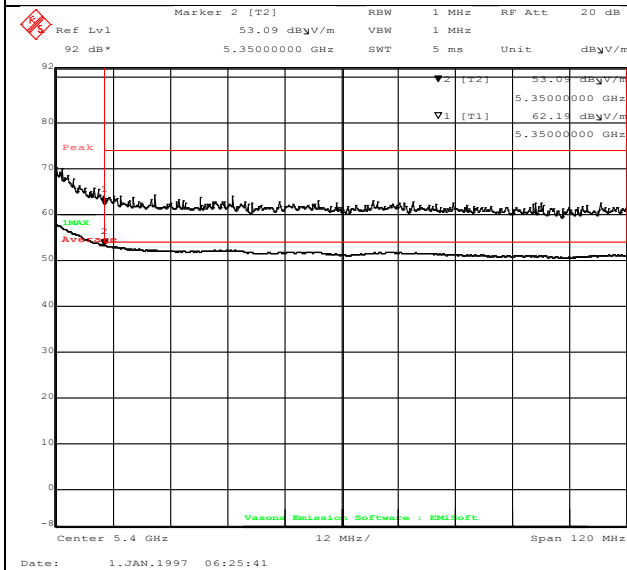
21dBi ANT-802.11ac 5530MHz Edge 5725MHz



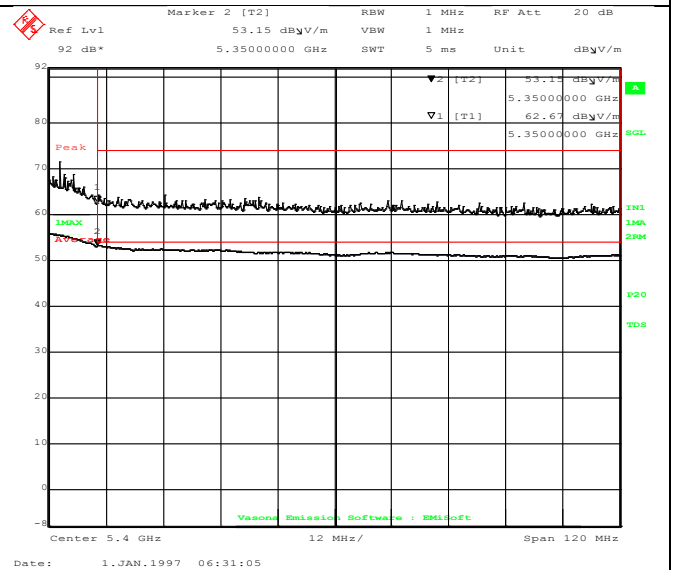
24dBi ANT-802.11a 5320MHz(5350-5460MHz)



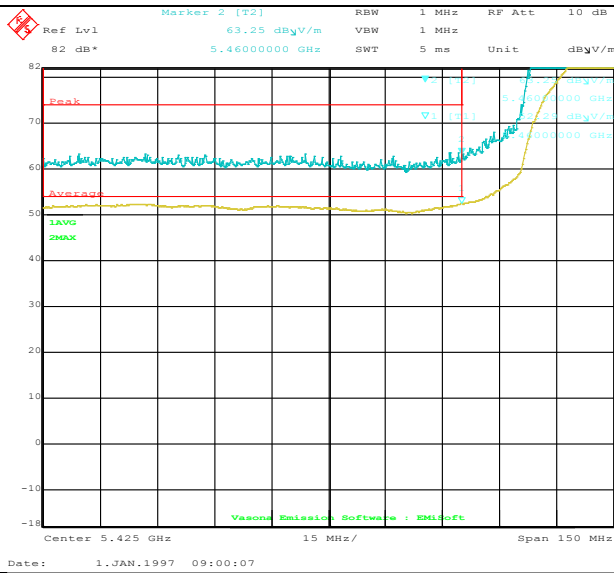
24dBi ANT-802.11n-HT20 5320MHz(5350-5460MHz)



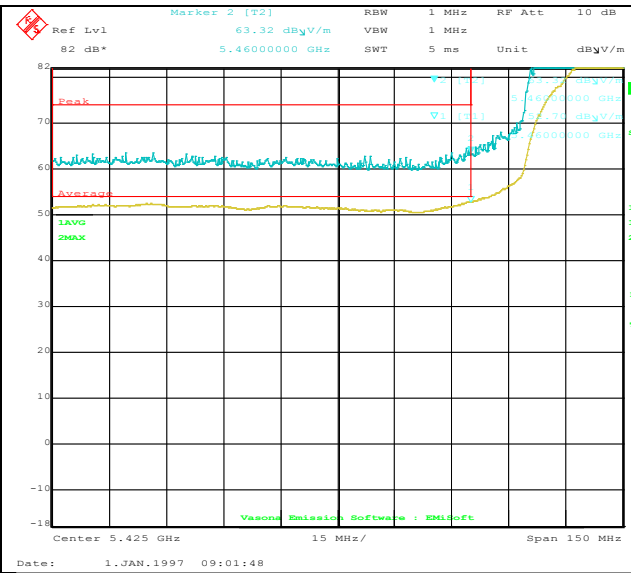
24dBi ANT-802.11n-HT40 5310MHz(5350-5460MHz)



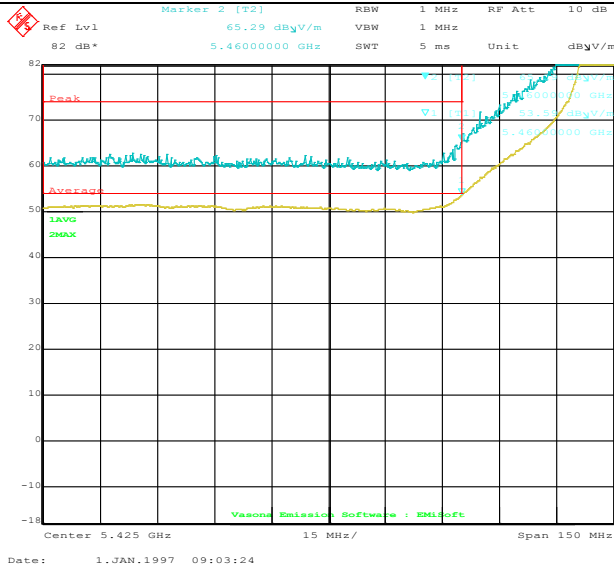
24dBi ANT-802.11ac 5290MHz(5350-5460MHz)



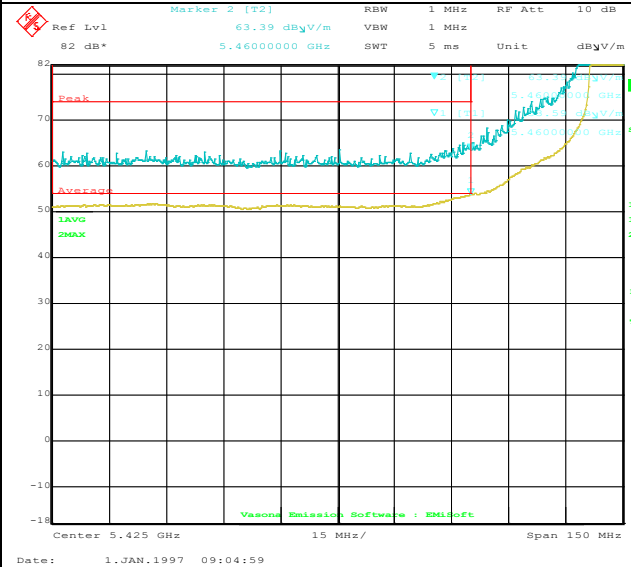
24dBi ANT-802.11a 5500MHz(5350-5470MHz)



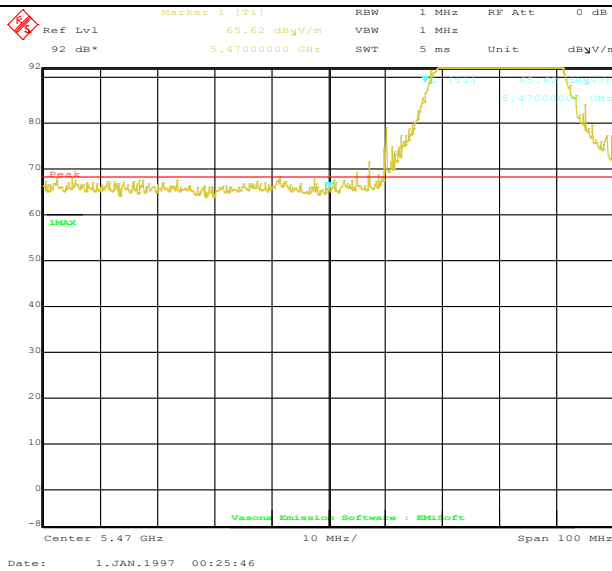
24dBi ANT-802.11n-HT20 5500MHz(5350-5470MHz)



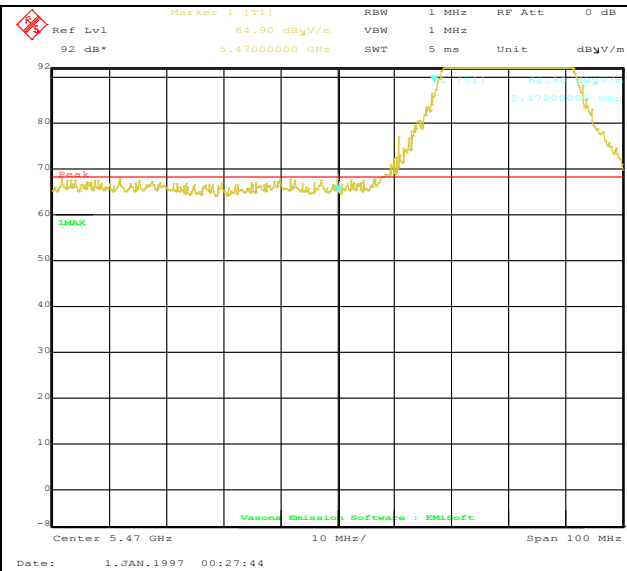
24dBi ANT-802.11n-HT40 5510MHz(5350-5470MHz)



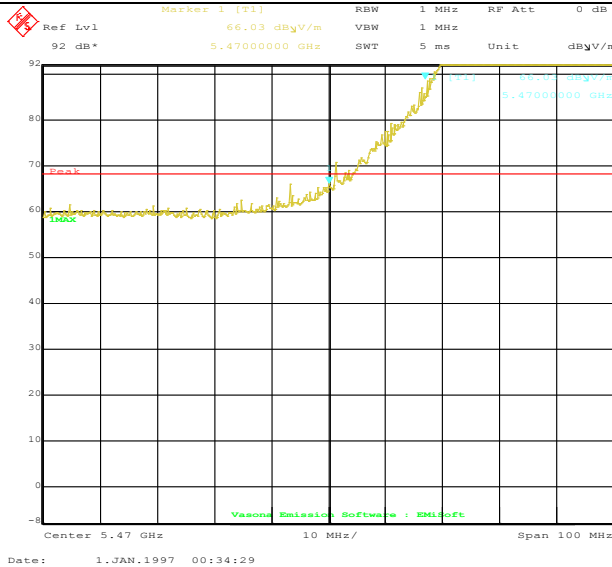
24dBi ANT-802.11ac 5530MHz(5350-5470MHz)



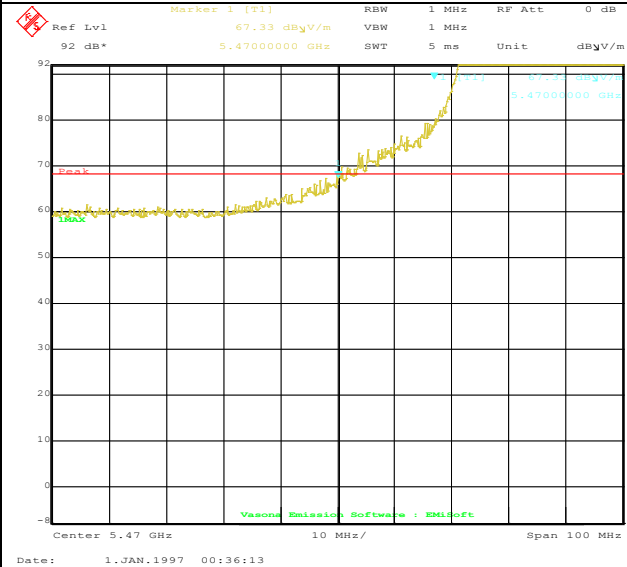
24dBi ANT-802.11a 5500MHz Edge 5470MHz



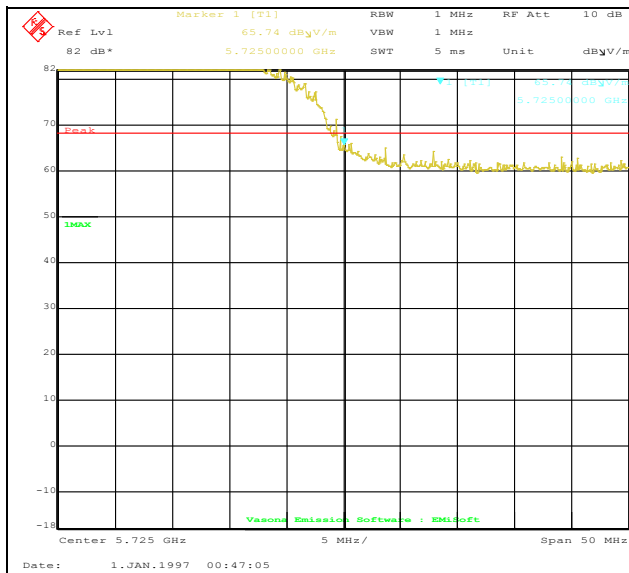
24dBi ANT-802.11n-HT20 5500MHz Edge 5470MHz



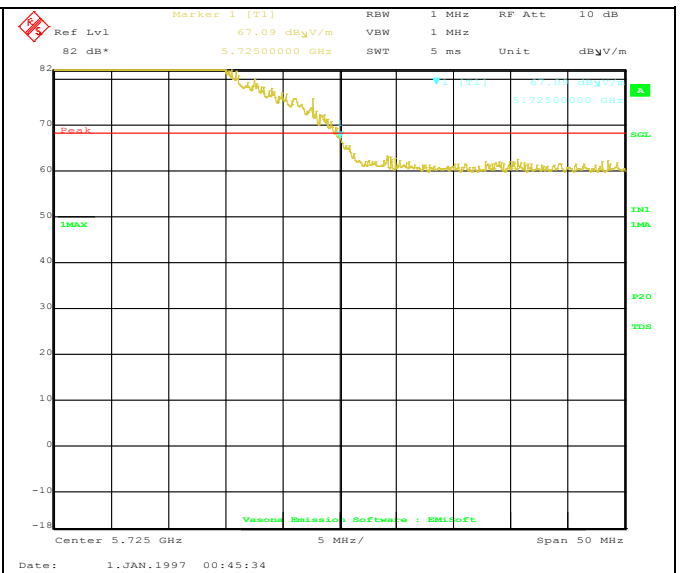
24dBi ANT-802.11n-HT40 5510MHz Edge 5470MHz



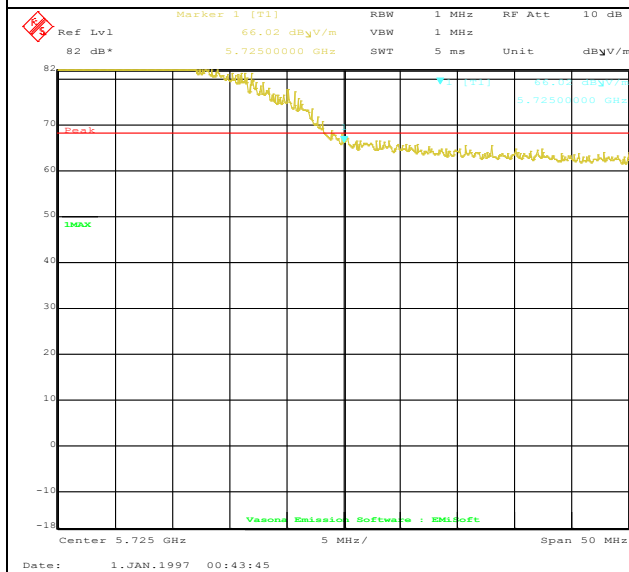
24dBi ANT-802.11ac 5530MHz Edge 5470MHz



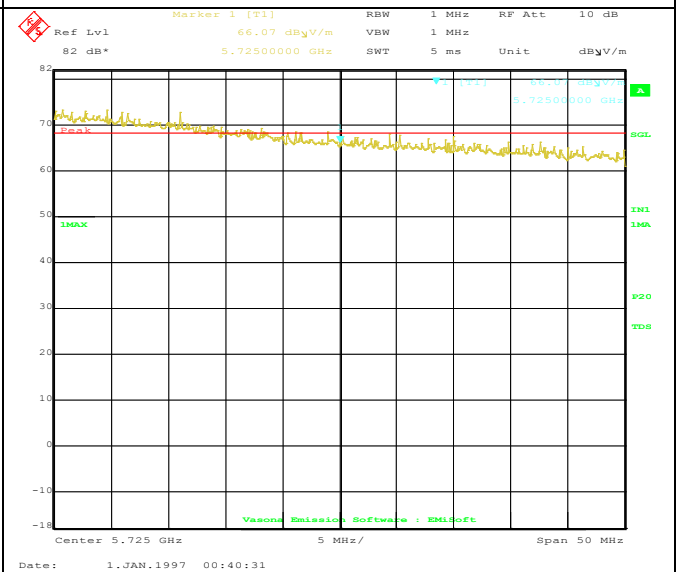
24dBi ANT-802.11a 5700MHz Edge 5725MHz



24dBi ANT-802.11n-HT20 5700MHz Edge 5725MHz



24dBi ANT-802.11n-HT40 5670MHz Edge 5725 MHz



24dBi ANT-802.11ac 5530MHz Edge 5725MHz

Radiated Emission Test Results (Above 1GHz)

14dBi Antenna

802.11a – 5260MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
5228.713	41.61	6.4	13.15	61.16	Peak Max	V	191	259	74	-12.84	Pass
5270.973	41.73	6.43	13.18	61.34	Peak Max	V	150	156	74	-12.66	Pass
2138.773	43.25	3.86	14.56	61.68	Peak Max	H	177	108	74	-12.32	Pass
7317.66	48.57	8.5	11.43	68.5	Peak Max	V	153	105	74	-5.5	Pass
5228.713	8.28	6.4	13.15	27.83	Average Max	V	191	259	54	-26.17	Pass
5270.973	8.39	6.43	13.18	28	Average Max	V	150	156	54	-26	Pass
2138.773	11.24	3.86	14.56	29.67	Average Max	H	177	108	54	-24.33	Pass
7317.66	15.23	8.5	11.43	35.16	Average Max	V	153	105	54	-18.84	Pass

802.11a – 5280MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
5297.68	42.03	6.44	13.2	61.67	Peak Max	H	200	69	74	-12.33	Pass
5261.14	41.75	6.42	13.17	61.34	Peak Max	H	170	246	74	-12.66	Pass
1017.547	46.54	2.45	13.17	62.16	Peak Max	H	186	17	74	-11.84	Pass
1975.04	43.07	3.3	14.8	61.18	Peak Max	V	197	259	74	-12.82	Pass
5297.68	8.53	6.44	13.2	28.17	Average Max	H	200	69	54	-25.83	Pass
5261.14	8.41	6.42	13.17	28	Average Max	H	170	246	54	-26	Pass
1017.547	17.38	2.45	13.17	33	Average Max	H	186	17	54	-21	Pass
1975.04	11.72	3.3	14.8	29.83	Average Max	V	197	259	54	-24.17	Pass

802.11a – 5320MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
2867.58	42.39	5.4	13.55	61.34	Peak Max	H	173	26	74	-12.66	Pass
2865.787	41.89	5.4	13.55	60.84	Peak Max	H	153	315	74	-13.16	Pass
1017.84	46.55	2.45	13.17	62.17	Peak Max	H	153	344	74	-11.83	Pass
2062.58	43.63	3.57	14.8	62	Peak Max	H	173	359	74	-12	Pass
2867.58	9.55	5.4	13.55	28.5	Average Max	H	173	26	54	-25.5	Pass
2865.787	9.38	5.4	13.55	28.33	Average Max	H	153	315	54	-25.67	Pass
1017.84	17.22	2.45	13.17	32.84	Average Max	H	153	344	54	-21.16	Pass
2062.58	11.64	3.57	14.8	30.01	Average Max	H	173	359	54	-23.99	Pass

802.11n-HT20— 5260MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
5278.153	42.05	6.43	13.19	61.67	Peak Max	V	157	284	74	-12.33	Pass
1023.307	46.54	2.45	13.16	62.16	Peak Max	V	166	250	74	-11.84	Pass
3990.573	42.78	5.82	15.72	64.32	Peak Max	V	170	130	74	-9.68	Pass
2068.3	44.78	3.6	14.78	63.16	Peak Max	V	199	48	74	-10.84	Pass
5278.153	8.05	6.43	13.19	27.67	Average Max	V	157	284	54	-26.33	Pass
1023.307	17.38	2.45	13.16	33	Average Max	V	166	250	54	-21	Pass
3990.573	6.96	5.82	15.72	28.5	Average Max	V	170	130	54	-25.5	Pass
2068.3	11.78	3.6	14.78	30.16	Average Max	V	199	48	54	-23.84	Pass

802.11n-HT20— 5280MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
5304.24	41.69	6.45	13.2	61.34	Peak Max	H	148	0	74	-12.66	Pass
5255.247	41.41	6.41	13.17	61	Peak Max	H	150	125	74	-13	Pass
1043.6	46.4	2.47	13.13	62	Peak Max	V	199	359	74	-12	Pass
3990.853	42.63	5.82	15.72	64.17	Peak Max	V	194	180	74	-9.83	Pass
5304.24	8.52	6.45	13.2	28.17	Average Max	H	148	0	54	-25.83	Pass
5255.247	8.24	6.41	13.17	27.83	Average Max	H	150	125	54	-26.17	Pass
1043.6	17.07	2.47	13.13	32.67	Average Max	V	199	359	54	-21.33	Pass
3990.853	7.13	5.82	15.72	28.67	Average Max	V	194	180	54	-25.33	Pass

802.11n-HT20— 5320MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
5338.113	41.96	6.47	13.22	61.65	Peak Max	H	149	151	74	-12.35	Pass
5295.367	42.02	6.44	13.2	61.66	Peak Max	H	162	354	74	-12.34	Pass
1014.193	47.21	2.45	13.18	62.84	Peak Max	H	148	184	74	-11.16	Pass
4073.473	42.68	5.89	15.43	64	Peak Max	H	169	101	74	-10	Pass
5338.113	8.48	6.47	13.22	28.17	Average Max	H	149	151	54	-25.83	Pass
5295.367	8.53	6.44	13.2	28.17	Average Max	H	162	354	54	-25.83	Pass
1014.193	17.37	2.45	13.18	33	Average Max	H	148	184	54	-21	Pass
4073.473	7.68	5.89	15.43	29	Average Max	H	169	101	54	-25	Pass

802.11n-HT40- 5270MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
5267.827	43.25	6.42	13.18	62.85	Peak Max	H	148	0	74	-11.15	Pass
1030.18	46.55	2.46	13.15	62.16	Peak Max	V	189	332	74	-11.84	Pass
2159.56	43.07	3.94	14.5	61.51	Peak Max	H	158	111	74	-12.49	Pass
2850.88	41.89	5.39	13.55	60.83	Peak Max	V	150	92	74	-13.17	Pass
5267.827	10.9	6.42	13.18	30.5	Average Max	H	148	0	54	-23.5	Pass
1030.18	17.23	2.46	13.15	32.84	Average Max	V	189	332	54	-21.16	Pass
2159.56	11.23	3.94	14.5	29.67	Average Max	H	158	111	54	-24.33	Pass
2850.88	9.56	5.39	13.55	28.5	Average Max	V	150	92	54	-25.5	Pass

802.11n-HT40- 5310MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
5287.887	41.21	6.44	13.19	60.84	Peak Max	H	148	264	74	-13.16	Pass
5326.813	46.98	6.46	13.22	66.66	Peak Max	H	172	16	74	-7.34	Pass
1035.973	46.06	2.46	13.14	61.66	Peak Max	V	148	264	74	-12.34	Pass
1989.773	43.42	3.32	14.92	61.66	Peak Max	H	160	65	74	-12.34	Pass
5287.887	8.37	6.44	13.19	28	Average Max	H	148	264	54	-26	Pass
5326.813	15.83	6.46	13.22	35.51	Average Max	H	172	16	54	-18.49	Pass
1035.973	17.07	2.46	13.14	32.67	Average Max	V	148	264	54	-21.33	Pass
1989.773	11.59	3.32	14.92	29.83	Average Max	H	160	65	54	-24.17	Pass

802.11ac - 5290MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
5288.007	43.37	6.44	13.19	63	Peak Max	H	162	350	74	-11	Pass
1033.367	46.23	2.46	13.15	61.84	Peak Max	H	186	37	74	-12.16	Pass
4181.967	42.39	5.98	14.96	63.33	Peak Max	V	170	62	74	-10.67	Pass
2067.42	43.12	3.59	14.78	61.5	Peak Max	H	162	359	74	-12.5	Pass
5288.007	11.2	6.44	13.19	30.83	Average Max	H	162	350	54	-23.17	Pass
1033.367	17.06	2.46	13.15	32.67	Average Max	H	186	37	54	-21.33	Pass
4181.967	8.23	5.98	14.96	29.17	Average Max	V	170	62	54	-24.83	Pass
2067.42	11.63	3.59	14.78	30.01	Average Max	H	162	359	54	-23.99	Pass

802.11a – 5500MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
5521.167	41.7	6.59	13.38	61.67	Peak Max	H	148	96	74	-12.33	Pass
5478.487	41.46	6.56	13.31	61.33	Peak Max	H	201	80	74	-12.67	Pass
1028.52	46.39	2.46	13.15	62	Peak Max	V	178	34	74	-12	Pass
1996.893	43.2	3.33	14.98	61.5	Peak Max	H	149	39	74	-12.5	Pass
5521.167	7.87	6.59	13.38	27.84	Average Max	H	148	96	54	-26.16	Pass
5478.487	8.3	6.56	13.31	28.17	Average Max	H	201	80	54	-25.83	Pass
1028.52	17.23	2.46	13.15	32.84	Average Max	V	178	34	54	-21.16	Pass
1996.893	11.54	3.33	14.98	29.84	Average Max	H	149	39	54	-24.16	Pass

802.11a – 5580MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
5546.26	41.62	6.6	13.45	61.67	Peak Max	V	306	342	74	-12.33	Pass
5591.693	41.47	6.63	13.57	61.67	Peak Max	V	306	0	74	-12.33	Pass
1038.953	45.91	2.46	13.14	61.51	Peak Max	H	306	359	74	-12.49	Pass
2016.467	43.16	3.4	14.95	61.5	Peak Max	H	306	332	74	-12.5	Pass
5546.26	7.78	6.6	13.45	27.83	Average Max	V	306	342	54	-26.17	Pass
5591.693	7.47	6.63	13.57	27.67	Average Max	V	306	0	54	-26.33	Pass
1038.953	16.9	2.46	13.14	32.5	Average Max	H	306	359	54	-21.5	Pass
2016.467	11.5	3.4	14.95	29.84	Average Max	H	306	332	54	-24.16	Pass

802.11a – 5700MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
1011.28	46.54	2.45	13.18	62.17	Peak Max	H	203	44	74	-11.83	Pass
3981.247	43	5.82	15.68	64.5	Peak Max	H	237	48	74	-9.5	Pass
2082.633	43.28	3.65	14.74	61.67	Peak Max	V	212	25	74	-12.33	Pass
5721.567	40.89	6.71	13.9	61.5	Peak Max	V	223	64	74	-12.5	Pass
1011.28	17.36	2.45	13.18	32.99	Average Max	H	203	44	54	-21.01	Pass
3981.247	7.84	5.82	15.68	29.34	Average Max	H	237	48	54	-24.66	Pass
2082.633	11.61	3.65	14.74	30	Average Max	V	212	25	54	-24	Pass
5721.567	6.56	6.71	13.9	27.17	Average Max	V	223	64	54	-26.83	Pass

802.11n-HT20-- 5500MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
5483.433	41.28	6.56	13.32	61.16	Peak Max	V	153	247	74	-12.84	Pass
5526.22	41.5	6.59	13.4	61.49	Peak Max	V	164	225	74	-12.51	Pass
2018.927	43.33	3.4	14.94	61.67	Peak Max	V	149	192	74	-12.33	Pass
4171.02	43.36	5.98	15	64.34	Peak Max	V	231	0	74	-9.66	Pass
5483.433	8.29	6.56	13.32	28.17	Average Max	V	153	247	54	-25.83	Pass
5526.22	8.01	6.59	13.4	28	Average Max	V	164	225	54	-26	Pass
2018.927	11.82	3.4	14.94	30.16	Average Max	V	149	192	54	-23.84	Pass
4171.02	8.19	5.98	15	29.17	Average Max	V	231	0	54	-24.83	Pass

802.11n-HT20-- 5580MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
1016.673	46.7	2.45	13.17	62.32	Peak Max	V	232	143	74	-11.68	Pass
5591.573	41.3	6.63	13.57	61.5	Peak Max	H	223	314	74	-12.5	Pass
2097.107	43.43	3.71	14.69	61.83	Peak Max	V	196	332	74	-12.17	Pass
1016.673	17.38	2.45	13.17	33	Average Max	V	232	143	54	-21	Pass
5591.573	7.47	6.63	13.57	27.67	Average Max	H	223	314	54	-26.33	Pass
2097.107	11.61	3.71	14.69	30.01	Average Max	V	196	332	54	-23.99	Pass

802.11n-HT20-- 5700MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
1048.16	45.74	2.47	13.12	61.33	Peak Max	V	172	255	74	-12.67	Pass
2074.387	43.29	3.62	14.76	61.67	Peak Max	H	240	132	74	-12.33	Pass
4170.8	42.69	5.98	15	63.67	Peak Max	V	156	359	74	-10.33	Pass
2889.013	42.35	5.42	13.55	61.32	Peak Max	V	246	57	74	-12.68	Pass
1048.16	16.91	2.47	13.12	32.5	Average Max	V	172	255	54	-21.5	Pass
2074.387	11.63	3.62	14.76	30.01	Average Max	H	240	132	54	-23.99	Pass
4170.8	8.19	5.98	15	29.17	Average Max	V	156	359	54	-24.83	Pass
2889.013	9.87	5.42	13.55	28.84	Average Max	V	246	57	54	-25.16	Pass

802.11n-HT40- 5510MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
5490.48	42.27	6.57	13.32	62.16	Peak Max	V	228	318	74	-11.84	Pass
5526.467	45.35	6.59	13.4	65.34	Peak Max	H	156	1	74	-8.66	Pass
1012.387	46.37	2.45	13.18	62	Peak Max	V	154	180	74	-12	Pass
2001.867	43.5	3.34	14.99	61.83	Peak Max	V	200	88	74	-12.17	Pass
5490.48	8.28	6.57	13.32	28.17	Average Max	V	228	318	54	-25.83	Pass
5526.467	12.68	6.59	13.4	32.67	Average Max	H	156	1	54	-21.33	Pass
1012.387	17.37	2.45	13.18	33	Average Max	V	154	180	54	-21	Pass
2001.867	11.67	3.34	14.99	30	Average Max	V	200	88	54	-24	Pass

802.11n-HT40- 5550MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
1077.413	45.93	2.49	13.08	61.49	Peak Max	H	245	359	74	-12.51	Pass
4166.913	43.67	5.97	15.02	64.66	Peak Max	H	166	289	74	-9.34	Pass
2120.093	43.43	3.79	14.62	61.84	Peak Max	V	233	190	74	-12.16	Pass
7563.88	47.59	8.65	11.44	67.67	Peak Max	H	197	0	74	-6.33	Pass
1077.413	16.6	2.49	13.08	32.16	Average Max	H	245	359	54	-21.84	Pass
4166.913	8.18	5.97	15.02	29.17	Average Max	H	166	289	54	-24.83	Pass
2120.093	11.42	3.79	14.62	29.83	Average Max	V	233	190	54	-24.17	Pass
7563.88	14.09	8.65	11.44	34.17	Average Max	H	197	0	54	-19.83	Pass

802.11n-HT40- 5670MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
1056.84	46.25	2.48	13.11	61.83	Peak Max	V	165	36	74	-12.17	Pass
2032.487	43.48	3.46	14.9	61.83	Peak Max	V	227	40	74	-12.17	Pass
3978.553	42.68	5.82	15.67	64.17	Peak Max	V	163	157	74	-9.83	Pass
2882.167	42.2	5.41	13.55	61.16	Peak Max	H	174	85	74	-12.84	Pass
1056.84	16.92	2.48	13.11	32.5	Average Max	V	165	36	54	-21.5	Pass
2032.487	11.81	3.46	14.9	30.16	Average Max	V	227	40	54	-23.84	Pass
3978.553	8.01	5.82	15.67	29.5	Average Max	V	163	157	54	-24.5	Pass
2882.167	9.71	5.41	13.55	28.67	Average Max	H	174	85	54	-25.33	Pass

802.11ac – 5530MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
1020.62	46.38	2.45	13.17	62	Peak Max	V	148	56	74	-12	Pass
2877.063	42.21	5.41	13.55	61.17	Peak Max	H	219	42	74	-12.83	Pass
2811.507	41.92	5.36	13.55	60.83	Peak Max	H	187	31	74	-13.17	Pass
1993.12	43.06	3.32	14.95	61.33	Peak Max	V	183	31	74	-12.67	Pass
1020.62	17.22	2.45	13.17	32.84	Average Max	V	148	56	54	-21.16	Pass
2877.063	9.71	5.41	13.55	28.67	Average Max	H	219	42	54	-25.33	Pass
2811.507	9.42	5.36	13.55	28.33	Average Max	H	187	31	54	-25.67	Pass
1993.12	11.57	3.32	14.95	29.84	Average Max	V	183	31	54	-24.16	Pass

CROSS BAND-802.11a-5720MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
1003.187	46.52	2.44	13.19	62.16	Peak Max	V	148	8	74	-11.84	Pass
2087.507	43.11	3.67	14.72	61.5	Peak Max	V	169	24	74	-12.5	Pass
4185.7	42.57	5.99	14.94	63.5	Peak Max	H	148	62	74	-10.5	Pass
3071.333	41.08	5.5	13.59	60.17	Peak Max	H	151	177	74	-13.83	Pass
1003.187	17.52	2.44	13.19	33.16	Average Max	V	148	8	54	-20.84	Pass
2087.507	6.62	3.67	14.72	25.01	Average Max	V	169	24	54	-28.99	Pass
4185.7	8.08	5.99	14.94	29.01	Average Max	H	148	62	54	-24.99	Pass
3071.333	9.08	5.5	13.59	28.17	Average Max	H	151	177	54	-25.83	Pass

CROSS BAND-802.11n-HT20-5720MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
5727.9	46.38	6.72	13.92	67.01	Peak Max	H	251	339	74	-6.99	Pass
5684.067	40.35	6.69	13.8	60.84	Peak Max	H	149	20	74	-13.16	Pass
1011.087	46.21	2.45	13.18	61.84	Peak Max	V	220	359	74	-12.16	Pass
2081.207	43.12	3.65	14.74	61.51	Peak Max	H	175	333	74	-12.49	Pass
5727.9	14.37	6.72	13.92	35	Average Max	H	251	339	54	-19	Pass
5684.067	6.68	6.69	13.8	27.17	Average Max	H	149	20	54	-26.83	Pass
1011.087	17.2	2.45	13.18	32.83	Average Max	V	220	359	54	-21.17	Pass
2081.207	11.45	3.65	14.74	29.84	Average Max	H	175	333	54	-24.16	Pass

CROSS BAND-802.11n-HT40-5710MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
1009.967	46.37	2.45	13.18	62	Peak Max	V	239	173	74	-12	Pass
2027.773	43.14	3.44	14.91	61.49	Peak Max	V	193	255	74	-12.51	Pass
5719.407	44.39	6.71	13.89	65	Peak Max	H	193	1	74	-9	Pass
2892.82	43.2	5.42	13.55	62.17	Peak Max	V	173	90	74	-11.83	Pass
1009.967	17.2	2.45	13.18	32.83	Average Max	V	239	173	54	-21.17	Pass
2027.773	11.65	3.44	14.91	30	Average Max	V	193	255	54	-24	Pass
5719.407	10.89	6.71	13.89	31.5	Average Max	H	193	1	54	-22.5	Pass
2892.82	9.87	5.42	13.55	28.84	Average Max	V	173	90	54	-25.16	Pass

CROSS BAND-802.11ac-5690MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
1008.733	46.88	2.45	13.19	62.51	Peak Max	H	172	153	74	-11.49	Pass
2011.453	43.48	3.38	14.96	61.82	Peak Max	H	184	5	74	-12.18	Pass
3983.307	42.66	5.82	15.69	64.17	Peak Max	H	149	243	74	-9.83	Pass
2882.427	41.71	5.41	13.55	60.67	Peak Max	V	196	359	74	-13.33	Pass
1008.733	17.37	2.45	13.19	33	Average Max	H	172	153	54	-21	Pass
2011.453	11.66	3.38	14.96	30	Average Max	H	184	5	54	-24	Pass
3983.307	7.83	5.82	15.69	29.34	Average Max	H	149	243	54	-24.66	Pass
2882.427	9.71	5.41	13.55	28.67	Average Max	V	196	359	54	-25.33	Pass

24dBi Antenna 802.11a – 5260MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
5234.347	41.61	6.4	13.16	61.17	Peak Max	H	271	0	74	-12.83	Pass
5264.853	53.06	6.42	13.18	72.66	Peak Max	H	155	239	74	-1.34	Pass
1049.72	45.91	2.47	13.12	61.5	Peak Max	V	270	18	74	-12.5	Pass
2056.747	43.79	3.55	14.82	62.16	Peak Max	V	274	0	74	-11.84	Pass
5234.347	8.11	6.4	13.16	27.67	Average Max	H	271	0	54	-26.33	Pass
5264.853	22.24	6.42	13.18	41.84	Average Max	H	155	239	54	-12.16	Pass
1049.72	16.91	2.47	13.12	32.5	Average Max	V	270	18	54	-21.5	Pass
2056.747	11.63	3.55	14.82	30	Average Max	V	274	0	54	-24	Pass

802.11a – 5280MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
5259.467	41.41	6.42	13.17	61	Peak Max	V	280	215	74	-13	Pass
5291.033	41.2	6.44	13.19	60.83	Peak Max	V	150	68	74	-13.17	Pass
1029.84	46.05	2.46	13.15	61.66	Peak Max	H	178	32	74	-12.34	Pass
1977.04	43.38	3.3	14.82	61.5	Peak Max	H	188	78	74	-12.5	Pass
5259.467	8.24	6.42	13.17	27.83	Average Max	V	280	215	54	-26.17	Pass
5291.033	8.54	6.44	13.19	28.17	Average Max	V	150	68	54	-25.83	Pass
1029.84	17.23	2.46	13.15	32.84	Average Max	H	178	32	54	-21.16	Pass
1977.04	11.71	3.3	14.82	29.83	Average Max	H	188	78	54	-24.17	Pass

802.11a – 5320MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
5328.727	47.16	6.46	13.22	66.84	Peak Max	V	146	240	74	-7.16	Pass
5288.54	41.7	6.44	13.19	61.33	Peak Max	H	99	197	74	-12.67	Pass
4834.24	43.21	6.24	13.21	62.66	Peak Max	V	137	241	74	-11.34	Pass
1019.693	46.55	2.45	13.17	62.17	Peak Max	V	295	343	74	-11.83	Pass
5328.727	13.32	6.46	13.22	33	Average Max	V	146	240	54	-21	Pass
5288.54	8.2	6.44	13.19	27.83	Average Max	H	99	197	54	-26.17	Pass
4834.24	10.22	6.24	13.21	29.67	Average Max	V	137	241	54	-24.33	Pass
1019.693	17.21	2.45	13.17	32.83	Average Max	V	295	343	54	-21.17	Pass

802.11n-HT20— 5260MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
5266.06	52.75	6.42	13.18	72.35	Peak Max	V	152	240	74	-1.65	Pass
5228.767	41.45	6.4	13.15	61	Peak Max	V	283	22	74	-13	Pass
1066.327	46.26	2.48	13.09	61.83	Peak Max	V	147	5	74	-12.17	Pass
2048.84	43.64	3.52	14.84	62	Peak Max	H	203	77	74	-12	Pass
5266.06	22.24	6.42	13.18	41.84	Average Max	V	152	240	54	-12.16	Pass
5228.767	8.12	6.4	13.15	27.67	Average Max	V	283	22	54	-26.33	Pass
1066.327	16.77	2.48	13.09	32.34	Average Max	V	147	5	54	-21.66	Pass
2048.84	11.8	3.52	14.84	30.16	Average Max	H	203	77	54	-23.84	Pass

802.11n-HT20— 5280MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
5295.833	41.52	6.44	13.2	61.16	Peak Max	H	160	83	74	-12.84	Pass
5256.367	41.41	6.42	13.17	61	Peak Max	H	151	234	74	-13	Pass
1009.84	46.37	2.45	13.18	62	Peak Max	V	100	6	74	-12	Pass
2066.68	43.45	3.59	14.79	61.83	Peak Max	V	141	270	74	-12.17	Pass
5295.833	8.36	6.44	13.2	28	Average Max	H	160	83	54	-26	Pass
5256.367	8.24	6.42	13.17	27.83	Average Max	H	151	234	54	-26.17	Pass
1009.84	17.54	2.45	13.18	33.17	Average Max	V	100	6	54	-20.83	Pass
2066.68	11.62	3.59	14.79	30	Average Max	V	141	270	54	-24	Pass

802.11n-HT20— 5320MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
5256.007	41.41	6.42	13.17	61	Peak Max	V	119	359	74	-13	Pass
5303.64	41.18	6.45	13.2	60.83	Peak Max	H	264	0	74	-13.17	Pass
1011.98	46.54	2.45	13.18	62.17	Peak Max	H	184	106	74	-11.83	Pass
2051.727	43.62	3.53	14.83	61.99	Peak Max	H	190	56	74	-12.01	Pass
5256.007	8.24	6.42	13.17	27.83	Average Max	V	119	359	54	-26.17	Pass
5303.64	8.52	6.45	13.2	28.17	Average Max	H	264	0	54	-25.83	Pass
1011.98	17.37	2.45	13.18	33	Average Max	H	184	106	54	-21	Pass
2051.727	11.79	3.53	14.83	30.16	Average Max	H	190	56	54	-23.84	Pass

802.11n-HT40- 5270MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
5296.527	41.53	6.44	13.2	61.17	Peak Max	V	208	182	74	-12.83	Pass
1041.033	46.74	2.47	13.13	62.34	Peak Max	V	196	21	74	-11.66	Pass
2014.633	43.32	3.39	14.95	61.66	Peak Max	V	183	9	74	-12.34	Pass
2900	42.19	5.43	13.55	61.16	Peak Max	V	235	121	74	-12.84	Pass
5296.527	8.36	6.44	13.2	28	Average Max	V	208	182	54	-26	Pass
1041.033	17.07	2.47	13.13	32.67	Average Max	V	196	21	54	-21.33	Pass
2014.633	11.66	3.39	14.95	30	Average Max	V	183	9	54	-24	Pass
2900	10.03	5.43	13.55	29	Average Max	V	235	121	54	-25	Pass

802.11n-HT40- 5310MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
1022.267	46.04	2.45	13.16	61.66	Peak Max	H	207	149	74	-12.34	Pass
2003.333	43.67	3.34	14.99	62	Peak Max	V	171	331	74	-12	Pass
7318.327	48.23	8.5	11.43	68.16	Peak Max	H	141	8	74	-5.84	Pass
1022.267	17.22	2.45	13.16	32.84	Average Max	H	207	149	54	-21.16	Pass
2003.333	11.67	3.34	14.99	30	Average Max	V	171	331	54	-24	Pass
7318.327	15.07	8.5	11.43	35	Average Max	H	141	8	54	-19	Pass

802.11ac - 5290MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
5324.227	49.66	6.46	13.22	69.34	Peak Max	V	135	241	74	-4.66	Pass
1014.327	46.55	2.45	13.18	62.18	Peak Max	H	101	15	74	-11.82	Pass
2023.907	43.65	3.42	14.92	62	Peak Max	H	136	0	74	-12	Pass
2813.753	41.75	5.36	13.55	60.66	Peak Max	V	219	0	74	-13.34	Pass
5324.227	19.32	6.46	13.22	39	Average Max	V	135	241	54	-15	Pass
1014.327	17.38	2.45	13.18	33.01	Average Max	H	101	15	54	-20.99	Pass
2023.907	11.65	3.42	14.92	30	Average Max	H	136	0	54	-24	Pass
2813.753	9.42	5.36	13.55	28.33	Average Max	V	219	0	54	-25.67	Pass

802.11a – 5500MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
5519.487	41.37	6.59	13.38	61.33	Peak Max	V	166	65	74	-12.67	Pass
5468.807	41.46	6.55	13.31	61.32	Peak Max	V	207	274	74	-12.68	Pass
4821.227	46.05	6.24	13.22	65.51	Peak Max	V	148	240	74	-8.49	Pass
4859.087	43.42	6.24	13.18	62.84	Peak Max	H	144	242	74	-11.16	Pass
5519.487	8.05	6.59	13.38	28.01	Average Max	V	166	65	54	-25.99	Pass
5468.807	8.14	6.55	13.31	28	Average Max	V	207	274	54	-26	Pass
4821.227	13.21	6.24	13.22	32.67	Average Max	V	148	240	54	-21.33	Pass
4859.087	10.57	6.24	13.18	29.99	Average Max	H	144	242	54	-24.01	Pass

802.11a – 5580MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
5593.5	41.12	6.63	13.57	61.33	Peak Max	V	270	159	74	-12.67	Pass
5550.42	41.26	6.61	13.46	61.33	Peak Max	H	130	42	74	-12.67	Pass
4786.553	44.32	6.24	13.27	63.83	Peak Max	H	151	239	74	-10.17	Pass
1040.02	45.73	2.47	13.14	61.33	Peak Max	H	272	0	74	-12.67	Pass
5593.5	7.46	6.63	13.57	27.67	Average Max	V	270	159	54	-26.33	Pass
5550.42	7.77	6.61	13.46	27.84	Average Max	H	130	42	54	-26.16	Pass
4786.553	10.99	6.24	13.27	30.5	Average Max	H	151	239	54	-23.5	Pass
1040.02	17.06	2.47	13.14	32.66	Average Max	H	272	0	54	-21.34	Pass

802.11a – 5700MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
5712.1	40.42	6.71	13.88	61	Peak Max	H	148	215	74	-13	Pass
5667.827	40.73	6.68	13.76	61.17	Peak Max	H	215	359	74	-12.83	Pass
4859.3	41.92	6.24	13.18	61.34	Peak Max	V	306	258	74	-12.66	Pass
1005.34	46.38	2.44	13.19	62.01	Peak Max	H	306	242	74	-11.99	Pass
5712.1	6.42	6.71	13.88	27	Average Max	H	148	215	54	-27	Pass
5667.827	6.9	6.68	13.76	27.34	Average Max	H	215	359	54	-26.66	Pass
4859.3	8.74	6.24	13.18	28.16	Average Max	V	306	258	54	-25.84	Pass
1005.34	17.37	2.44	13.19	33	Average Max	H	306	242	54	-21	Pass

802.11n-HT20— 5500MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
5471.867	41.48	6.56	13.31	61.35	Peak Max	V	251	0	74	-12.65	Pass
5516.26	41.38	6.58	13.37	61.33	Peak Max	V	224	183	74	-12.67	Pass
4816.887	46.03	6.24	13.23	65.5	Peak Max	H	149	234	74	-8.5	Pass
2095.633	43.1	3.7	14.7	61.5	Peak Max	V	199	37	74	-12.5	Pass
5471.867	8.13	6.56	13.31	28	Average Max	V	251	0	54	-26	Pass
5516.26	8.06	6.58	13.37	28.01	Average Max	V	224	183	54	-25.99	Pass
4816.887	13.2	6.24	13.23	32.67	Average Max	H	149	234	54	-21.33	Pass
2095.633	11.43	3.7	14.7	29.83	Average Max	V	199	37	54	-24.17	Pass

802.11n-HT20— 5580MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
5555.013	40.74	6.61	13.47	60.82	Peak Max	V	198	76	74	-13.18	Pass
5595.833	40.79	6.64	13.58	61	Peak Max	V	272	281	74	-13	Pass
4803.113	50.18	6.24	13.25	69.67	Peak Max	V	146	236	74	-4.33	Pass
1015.007	46.06	2.45	13.18	61.68	Peak Max	H	130	239	74	-12.32	Pass
5555.013	7.09	6.61	13.47	27.17	Average Max	V	198	76	54	-26.83	Pass
5595.833	6.96	6.64	13.58	27.17	Average Max	V	272	281	54	-26.83	Pass
4803.113	15.34	6.24	13.25	34.83	Average Max	V	146	236	54	-19.17	Pass
1015.007	17.2	2.45	13.18	32.82	Average Max	H	130	239	54	-21.18	Pass

802.11n-HT20— 5700MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
5674.467	41.05	6.68	13.78	61.51	Peak Max	V	100	110	74	-12.49	Pass
5715.427	40.08	6.71	13.88	60.67	Peak Max	V	183	230	74	-13.33	Pass
4783.847	41.99	6.24	13.27	61.5	Peak Max	V	133	231	74	-12.5	Pass
1031.753	46.06	2.46	13.15	61.67	Peak Max	H	109	172	74	-12.33	Pass
5674.467	6.37	6.68	13.78	26.83	Average Max	V	100	110	54	-27.17	Pass
5715.427	6.25	6.71	13.88	26.84	Average Max	V	183	230	54	-27.16	Pass
4783.847	9.16	6.24	13.27	28.67	Average Max	V	133	231	54	-25.33	Pass
1031.753	17.06	2.46	13.15	32.67	Average Max	H	109	172	54	-21.33	Pass

802.11n-HT40- 5510MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
5500.28	49.45	6.57	13.33	69.35	Peak Max	V	165	231	74	-4.65	Pass
1021.873	46.55	2.45	13.16	62.17	Peak Max	H	196	180	74	-11.83	Pass
2092.807	42.78	3.69	14.7	61.17	Peak Max	V	126	41	74	-12.83	Pass
7550.78	47.58	8.65	11.44	67.67	Peak Max	V	172	308	74	-6.33	Pass
5500.28	17.6	6.57	13.33	37.5	Average Max	V	165	231	54	-16.5	Pass
1021.873	17.22	2.45	13.16	32.84	Average Max	H	196	180	54	-21.16	Pass
2092.807	11.28	3.69	14.7	29.67	Average Max	V	126	41	54	-24.33	Pass
7550.78	13.91	8.65	11.44	34	Average Max	V	172	308	54	-20	Pass

802.11n-HT40- 5550MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
5565.427	48.23	6.62	13.5	68.34	Peak Max	H	147	228	74	-5.66	Pass
5510.667	41.4	6.58	13.35	61.34	Peak Max	H	190	193	74	-12.66	Pass
4826.5	44.21	6.24	13.22	63.67	Peak Max	H	143	233	74	-10.33	Pass
1020.173	46.38	2.45	13.17	62	Peak Max	V	268	1	74	-12	Pass
5565.427	16.22	6.62	13.5	36.33	Average Max	H	147	228	54	-17.67	Pass
5510.667	7.9	6.58	13.35	27.84	Average Max	H	190	193	54	-26.16	Pass
4826.5	11.55	6.24	13.22	31.01	Average Max	H	143	233	54	-22.99	Pass
1020.173	17.22	2.45	13.17	32.84	Average Max	V	268	1	54	-21.16	Pass

802.11n-HT40- 5670MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
5691.893	40.8	6.69	13.82	61.32	Peak Max	H	138	139	74	-12.68	Pass
4857.027	43.91	6.24	13.18	63.33	Peak Max	V	160	232	74	-10.67	Pass
1013.653	46.38	2.45	13.18	62.01	Peak Max	H	106	73	74	-11.99	Pass
4892.493	42.96	6.24	13.13	62.33	Peak Max	V	147	233	74	-11.67	Pass
5691.893	6.47	6.69	13.82	26.99	Average Max	H	138	139	54	-27.01	Pass
4857.027	10.74	6.24	13.18	30.16	Average Max	V	160	232	54	-23.84	Pass
1013.653	17.37	2.45	13.18	33	Average Max	H	106	73	54	-21	Pass
4892.493	9.63	6.24	13.13	29	Average Max	V	147	233	54	-25	Pass

802.11ac – 5530MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
5513.827	43.05	6.58	13.36	63	Peak Max	V	167	227	74	-11	Pass
1047.147	45.58	2.47	13.12	61.17	Peak Max	H	234	55	74	-12.83	Pass
2021.067	43.49	3.41	14.93	61.83	Peak Max	V	244	17	74	-12.17	Pass
2841.513	41.91	5.38	13.55	60.84	Peak Max	H	214	359	74	-13.16	Pass
5513.827	8.39	6.58	13.36	28.34	Average Max	V	167	227	54	-25.66	Pass
1047.147	16.91	2.47	13.12	32.5	Average Max	H	234	55	54	-21.5	Pass
2021.067	11.66	3.41	14.93	30	Average Max	V	244	17	54	-24	Pass
2841.513	9.57	5.38	13.55	28.5	Average Max	H	214	359	54	-25.5	Pass

CROSS BAND-802.11a-5720MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
5695.347	40.8	6.7	13.83	61.33	Peak Max	H	186	359	74	-12.67	Pass
5735.633	40.33	6.72	13.94	60.99	Peak Max	V	225	188	74	-13.01	Pass
4785.44	43.98	6.24	13.27	63.49	Peak Max	V	128	236	74	-10.51	Pass
2048.18	43.3	3.52	14.84	61.66	Peak Max	V	222	179	74	-12.34	Pass
5695.347	6.64	6.7	13.83	27.17	Average Max	H	186	359	54	-26.83	Pass
5735.633	6.34	6.72	13.94	27	Average Max	V	225	188	54	-27	Pass
4785.44	10.83	6.24	13.27	30.34	Average Max	V	128	236	54	-23.66	Pass
2048.18	11.64	3.52	14.84	30	Average Max	V	222	179	54	-24	Pass

CROSS BAND-802.11n-HT20-5720MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
5698.493	40.79	6.7	13.84	61.33	Peak Max	H	137	359	74	-12.67	Pass
5743.46	40.49	6.73	13.96	61.17	Peak Max	H	137	337	74	-12.83	Pass
4834.187	42.39	6.24	13.21	61.84	Peak Max	V	170	232	74	-12.16	Pass
1023.04	46.04	2.45	13.16	61.66	Peak Max	V	240	344	74	-12.34	Pass
5698.493	6.47	6.7	13.84	27.01	Average Max	H	137	359	54	-26.99	Pass
5743.46	6.49	6.73	13.96	27.17	Average Max	H	137	337	54	-26.83	Pass
4834.187	9.88	6.24	13.21	29.33	Average Max	V	170	232	54	-24.67	Pass
1023.04	17.22	2.45	13.16	32.84	Average Max	V	240	344	54	-21.16	Pass

CROSS BAND-802.11n-HT40-5710MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
5690.473	41.31	6.69	13.82	61.83	Peak Max	V	197	38	74	-12.17	Pass
5729.96	40.53	6.72	13.92	61.17	Peak Max	H	214	103	74	-12.83	Pass
4807.447	46.68	6.24	13.24	66.16	Peak Max	V	145	235	74	-7.84	Pass
1055.247	46.41	2.47	13.11	62	Peak Max	H	216	37	74	-12	Pass
5690.473	6.48	6.69	13.82	27	Average Max	V	197	38	54	-27	Pass
5729.96	6.53	6.72	13.92	27.17	Average Max	H	214	103	54	-26.83	Pass
4807.447	13.69	6.24	13.24	33.17	Average Max	V	145	235	54	-20.83	Pass
1055.247	16.91	2.47	13.11	32.5	Average Max	H	216	37	54	-21.5	Pass

CROSS BAND-802.11ac-5690MHz

Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Pass /Fail
5684.767	43.83	6.69	13.81	64.33	Peak Max	H	159	228	74	-9.67	Pass
5735.413	40.34	6.72	13.94	61	Peak Max	V	111	181	74	-13	Pass
4795.253	46	6.24	13.26	65.5	Peak Max	H	149	234	74	-8.5	Pass
1006.52	46.7	2.44	13.19	62.33	Peak Max	H	100	0	74	-11.67	Pass
5684.767	11.17	6.69	13.81	31.67	Average Max	H	159	228	54	-22.33	Pass
5735.413	6.34	6.72	13.94	27	Average Max	V	111	181	54	-27	Pass
4795.253	13.17	6.24	13.26	32.67	Average Max	H	149	234	54	-21.33	Pass
1006.52	17.37	2.44	13.19	33	Average Max	H	100	0	54	-21	Pass

Annex A. TEST INSTRUMENT

Instrument	Model	Serial #	Cal Cycle	Cal Due	In use
Conducted Emissions					
Spectrum Analyzer	N9010A	MY50210206	1 Year	8/13/2015	☒
Signal Analyzer	FSIQ7	825555/013	1 Year	05/31/2015	☒
V-LISN (150 kHz – 30 MHz)	NNLK 8129	8129-190	1 Year	08/11/2015	☒
LISN (9 kHz – 30 MHz)	MN2050B	1018	1 Year	07/31/2015	☒
TLISN	ISN T800	30814	1 Year	08/08/2015	☒
Hygro Hermograph	ST-50	HE01-000092	1 Year	05/25/2015	☒
Radiated Emissions					
EMI Test Receiver	ESIB 40	100179	1 Year	05/24/2015	☒
Antenna - Biconlog (30 MHz – 2 GHz)	JB1	A030702	1 Year	08/12/2015	☒
DoubleRidged Waveguide Horn Antenna (1-18 GHz)	3115	10SL0059	1 Year	08/11/2015	☒
Horn Antenna (18-40 GHz)	AH-840	101013	1 Year	08/11/2015	☒
RF Pre-Amplifier	LPA-6-30	11140711	1 Year	02/19/2016	☒
Microwave Preamplifier (18-40 GHz)	PA-840	181251	1 Year	02/19/2016	☒
10 Meters SAC	10M	N/A	1 Year	09/05/2015	☒
Hygro Hermograph	ST-50	HE01-000092	1 Year	05/25/2015	☒
RF Conducted Measurement					
Spectrum Analyzer	N9010A	MY50210206	1 Year	8/13/2015	☒

Annex B. SIEMIC Accreditation

Accreditations	Document	Scope / Remark
ISO 17025 (A2LA)		Please see the documents for the detailed scope
ISO Guide 65 (A2LA)		Please see the documents for the detailed scope
TCB Designation		A1 , A2 , A3 , A4 , B1 , B2 , B3 , B4 , C
FCC DoC Accreditation		FCC Declaration of Conformity Accreditation
FCC Site Registration		3 meter site
FCC Site Registration		10 meter site
IC Site Registration		3 meter site
IC Site Registration		10 meter site
EU NB		Radio & Telecommunications Terminal Equipment: EN45001 – EN ISO/IEC 17025
		Electromagnetic Compatibility: EN45001 – EN ISO/IEC 17025
Singapore iDA CB(Certification Body)		Phase I , Phase II
Vietnam MIC CAB Accreditation		Please see the document for the detailed scope
Hong Kong OFCA		(Phase II) OFCA Foreign Certification Body for Radio and Telecom
		(Phase I) Conformity Assessment Body for Radio and Telecom
Industry Canada CAB		Radio: Scope A – All Radio Standard Specification in Category I
		Telecom: CS-03 Part I, II, V, VI, VII, VIII

Japan Recognized Certification Body Designation		Radio: A1. Terminal equipment for purpose of calling Telecom: B1. Specified radio equipment specified in Article 38-2, Paragraph 1, Item 1 of the Radio Law
Korea CAB Accreditation		EMI: KCC Notice 2008-39, RRL Notice 2008-3: CA Procedures for EMI KN22: Test Method for EMI EMS: KCC Notice 2008-38, RRL Notice 2008-4: CA Procedures for EMS KN24, KN61000-4-2, -4-3, -4-4, -4-5, -4-6, -4-8, -4-11: Test Method for EMS Radio: RRL Notice 2008-26, RRL Notice 2008-2, RRL Notice 2008-10, RRL Notice 2007-49, RRL Notice 2007-20, RRL Notice 2007-21, RRL Notice 2007-80, RRL Notice 2004-68 Telecom: President Notice 20664, RRL Notice 2007-30, RRL Notice 2008-7 with attachments 1, 3, 5, 6; President Notice 20664, RRL Notice 2008-7 with attachment 4
Taiwan NCC CAB Recognition		LP0002, PSTN01, ADSL01, ID0002, IS6100, CNS14336, PLMN07, PLMN01, PLMN08
Taiwan BSMI CAB Recognition		CNS 13438
Japan VCCI		R-3083: Radiation 3 meter site C-3421: Main Ports Conducted Interference Measurement T-1597: Telecommunication Ports Conducted Interference Measurement
Australia CAB Recognition		EMC: AS/NZS CISPR 11, AS/NZS CISPR 14.1, AS/NZS CISPR22, AS/NZS 61000.6.3, AS/NZS 61000.6.4 Radio communications: AS/NZS 4281, AS/NZS 4268, AS/NZS 4280.1, AS/NZS 4280.2, AS/NZS 4295, AS/NZS 4582, AS/NZS 4583, AS/NZS 4769.1, AS/NZS 4769.2, AS/NZS 4770, AS/NZS 4771 Telecommunications: AS/ACIF S002:05, AS/ACIF S003:06, AS/ACIF S004:06 AS/ACIF S006:01, AS/ACIF S016:01, AS/ACIF S031:01, AS/ACIF S038:01, AS/ACIF S040:01, AS/ACIF S041:05, AS/ACIF S043.2:06, AS/ACIF S60950.1
Australia NATA Recognition		AS/ACIF S002, AS/ACIF S003, AS/ACIF S004, AS/ACIF S006, AS/ACIF S016, AS/ACIF S031, AS/ACIF S038, AS/ACIF S040, AS/ACIF S041, AS/ACIF S043.2